Kaunas University of Technology

School of Economics and Business

Refinement of Value-Added Structure to Create a Competitive Advantage for Local E-Commerce Business

Master's Final Degree Project

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Declaration of Academic Integrity

I confirm that the final project of mine, Vainius Venclovas, on the topic „Refinement of Value-Added Structure to Create a Competitive Advantage for Local E-Commerce Business“ is written completely by myself; all the provided data and research results are correct and have been obtained honestly. None of the parts of this thesis have been plagiarised from any printed, Internet-based or otherwise recorded sources. All direct and indirect quotations from external resources are indicated in the list of references. No monetary funds (unless required by Law) have been paid to anyone for any contribution to this project.

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Summary

Electronic commerce has evolved to a phenomenon which provides the end users the ability to purchase products or services remotely. Due to many benefits the industry sees continuous growth. Due to the nature of ecommerce, global leading companies can attract customers from different parts of the world. Lithuania has exceptionally large numbers of people who tend to make purchases from non-local providers. Such information creates an assumption that global providers threaten the existence of Lithuanian ecommerce.

The research is focused on providing in-depth view on how Lithuanian ecommerce can create competitive advantages through added-value structure refinement. Study aim is to provide insights on competitive advantage creation opportunities for local e-commerce provider.

Added-value structure in e-commerce was defined by five main dimensions – User Experience, Reliability, Security, Privacy and Customer Relationship. Correlations between these dimensions were discussed, priority level was set by evaluating product types and by analyzing similar research. Empirical subjects were chosen as Pigu.lt and Aliexpress.com. The decision was made by taking in account the attendances statistics and assuming that the biggest providers can best represent the local versus global rivalry. The empirical study was carried out in two parts: 1) a 7-point Likert scale survey, which was focused on measurable added-value indicators in the given structure 2) a secondary data analysis, which mainly consisted of a comparison of technically measurable parameters. The data for this analysis was extracted from several third-party software providers or in some cases, measured by the author.

Empirical study provided insights on how Lithuanian customers perceive Pigu.lt and Aliexpress.com in the added-value structure context. It was found that the majority of survey-measured indicators are in favor of Pigu.lt (18/20). However, the survey provided knowledge about areas in which Pigu.lt lacks behind and in which areas the difference between Aliexpress.com is not statistically significant. The presented technical – oriented parameters allowed to understand that Pigu.lt does not have consistent measurements in the mobile version of the site.

The following main competitive advantage creation opportunities were discovered and prioritized:

1. Pigu.lt should start encouraging customers to leave feedback about products and their experience, that way aggregating a higher quantity of reviews.
2. Pigu.lt should re-evaluate their website design, focus more on user convenience, which includes buying process flow, button placement and mobile version of the site.
3. Pigu.lt should focus on product related information, making it more complete and easier to find.

The research showed that Aliexpress.com focuses on the most important and impactful added value dimensions but lacks good evaluations in Privacy and Customer Relationship dimensions. These weak points can be exploited and used by local ecommerce providers. Technical analysis showed that Aliexpress.com has consistent technical evaluations in all the measured dimensions, only several individual indicators were below average.

Vainius, Venclovas. Pridėtinės vertės struktūros tobulinimas, siekiant sukurti konkurencinį pranašumą vietiniame elektroninės komercijos versle. Magistro baigiamasis projektas / Vadovas Doc. Dr. Egidijus Rybakovas; Kauno technologijos universitetas, Ekonomikas ir verslo fakultetas.

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Reikšminiai žodžiai: elektroninė prekyba, konkurencinis pranašumas, vietinis verslas, pridėtinės vertės struktūra, pridėtinė vertė.

Kaunas, 2020. 75 p.

Santrauka

Elektroninė komercija tapo fenomenu, kuris suteikia galutiniams vartotojams galimybę parduoti produktus ar paslaugas nuotoliniu būdu. Dėl daugybės pranašumų pramonė mato nuolatinį augimą. Dėl elektroninės prekybos pobūdžio pirmaujančios pasaulinės kompanijos gali pritraukti klientų iš įvairių pasaulio šalių. Lietuvoje yra išskirtinai daug žmonių, linkusių pirkti iš pasaulinių paslaugų teikėjų. Tokie duomenys leidžia daryti prielaidą, kad pasauliniai tiekėjai kelia grėsmę Lietuvos elektroninės prekybos egzistavimui.

Tyrimas sutelktas į išsamų vaizdą, kaip Lietuvos elektroninė prekyba gali sukurti konkurencinius pranašumus, tobulinant pridėtinės vertės struktūrą. Tikslas - pateikti įžvalgas apie konkurencinio pranašumo kūrimo galimybes vietiniam elektroninės komercijos verslui.

Pridėtinės vertės struktūra buvo apibrėžta ir paskirstyta per penkis pagrindinius aspektus – Naudotojų Patyrimą, Patikimumą, Saugumą, Privatumą ir Santykius. Buvo aptartos dimensijų koreliacijos, nustatytas prioriteto lygis vertinant produktų rūšis ir analizuojant panašius tyrimus. Empiriniai subjektai buvo pasirinkti kaip Pigu.lt ir Aliexpress.com. Sprendimas buvo priimtas atsižvelgiant į lankomumo statistiką ir darant prielaidą, kad didžiausi paslaugų teikėjai gali geriausiai reprezentuoti vietinių ir pasaulio kompanijų konkurenciją. Empirinis tyrimas buvo atliktas iš dviejų dalių: 1) 7 balų Likerto skalės tyrimas, kuriame didžiausias dėmesys buvo skiriamas išmatuojamiems pridėtinės vertės rodikliams pateiktoje struktūroje; 2) antrinė duomenų analizė, kurią sudarė techninių išmatuojamų parametrų palyginimas. Duomenys šiai analizei buvo paimti iš trečiųjų šalių tiekėjų arba kai kuriais atvejais išmatuoti autoriaus.

Empirinis tyrimas pateikė įžvalgas, kaip Lietuvos pirkėjai vertina Pigu.lt ir Aliexpress.com, pridėtinės vertės struktūros kontekste. Buvo nustatyta, kad dauguma apklausos metu išmatuotų rodiklių palaiko Pigu.lt (18/20). Tačiau apklausa suteikė žinių apie tai, kuriose srityse Pigu.lt atsilieka ir kuriose srityse skirtumas tarp Aliexpress.com nėra statistiškai reikšmingas. Pateikti techniniai parametrai leido suprasti, kad Pigu.lt neturi nuoseklių matavimų mobiliojoje svetainės versijoje.

Buvo nustatytos ir išdėstytos šios svarbiausios konkurencinio pranašumo kūrimo galimybės:
1. Pigu.lt turėtų pradėti raginti klientus palikti atsiliepimus apie produktus ir jų patirtį, tokiu būdu sukaupdama didesnį atsiliepimų kiekį.
2. Pigu.lt turėtų iš naujo įvertinti savo svetainės dizainą, daugiau dėmesio skirti vartotojo patogumui, kuris apima pirkimo proceso srautą, mygtukų išdėstymą ir mobiliąją svetainės versiją.
3. Pigu.lt turėtų sutelkti dėmesį į su produktu susijusią informaciją, kad ji būtų išsamesnė ir lengviau randama

Tyrimas parodė, kad Aliexpress.com daugiausiai dėmesio skiria svarbiausiems ir įtakingiausiems pridėtinės vertės aspektams. Blogiausiai įvertintos dimensijos buvo – Privatumas ir Santykiai. Vietos elektroninės komercijos verslai gali išnaudoti šias silpnąsias vietas. Techninė analizė parodė, kad Aliexpress.com techniniai rodikliai yra nuoseklūs, tik keli atskiri matmenys buvo mažesni nei vidurkis.

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Abbreviations:

HF/LC – High frequency/Low cost;

LF/HC – Low frequency/ High cost

ecommerce/e-commerce – Electronic commerce

Introduction

Relevancy of the topic – in today's society electronical commerce (ecommerce) has evolved to a phenomenon which provides shoppers the ability to easily purchase product or services from the comfort of their home. Even with all of the perceived risks (buying without real interaction, reliability issues, transactional questions, shipping inconvenience) ecommerce is considered to be highly beneficial to the end customer and has changed the retail industry. Because of that, ecommerce industry is seeing sustainable and substantial growth each year, new companies are being created to satisfy the online buyer's needs.

This constant growth and technological evolvement are highly beneficial to the ecommerce end-users but can create as much opportunities, as threats for various businesses. Due to the nature of the industry, online companies can operate in any part of the world and that provides a threat of extinction for local ecommerce companies if they will not be able to compete with more advanced and significant global rivals who typically can offer lower prices. For that reason, it is necessary to investigate added value perception and determine the possible strategic decisions which could help local businesses to create competitive advantage. According to "Kauno Diena" article and statistical data (2017), in this vastly growing industry in which users tend to use the given opportunity to purchase certain products/services from companies which are stationed in different parts of the world, Lithuania has really visible threats. The European Union average of users who at least once bought goods from an e-shop, which were not based in their home country is around 52 percent. In comparison in Lithuania, this number is a bit over 75 percent (Kauno diena, 2017).

Useful insights about competitive advantage creation could create additional growth opportunities to Lithuanian business in global context. Such beneficial outcome in business growth could lead to the creation of jobs and possibly investment attraction.

Object – Local ecommerce business development of competitive advantages based on the refinement of value-added structure.

Aim –To provide insights on competitive advantage creation opportunities for a local e-commerce provider.

In order to achieve the set aim, the following **tasks** must be completed:

1. Reveal the problem about local and global competition risks. Identify main reasons and highlight main opportunities.
2. Theoretically define added value structure and the process of its refinement to create competitive advantage in e-commerce business.
3. Empirically investigate Pigu.lt and Aliexpress.com customers perceived added value structure and provide insights about possible refinements.
4. Provide added value improvement opportunities, by highlighting the weaknesses of the most visited global provider.

1. Local ecommerce challenges and opportunities

In this chapter of the study the potential local problems and opportunities will be analyzed and revealed. The following information will be used in justifying the research and choosing the needed paper structure to solve the revealed problem.

1.1. E-commerce definition and origin

In order to understand the local industry problems, it seems essential to investigate ecommerce roots and definition.

For the whole capitalistic system and monetary value existence humankind had a need to optimize processes and aggregate value in a more cost-effective way. The necessity to reach higher efficiency standards and produce-higher quality materials and goods eventually led to some historical changes. The emergence of capitalism is considered to be one of the main reasons of the Industrial revolution which took place back in the 18th century and further technological development, which eventually led to the Information Revolution. The latter describes the current economic, social and technological trends. Drastic technological growth was responsible for a groundbreaking industry creation, which is now known as e-commerce.

E-commerce (globally known as electronic commerce) is considered an activity in which customers purchase specific goods or services remotely via internet (Wigand, 1997). This new industry provided businesses the opportunities to minimize overhead costs, increase efficiency, reduce expenses, improve transactions and good delivery speeds, provided the abilities to easily reach new markets and much more (Sawmy & Damar-Ladkoo, 2015). Due to these opportunities, retailers not only had a positive change but also have been given the ability to completely transform customer experience in purchasing habits and satisfaction levels. For that reason, it was quickly defined that ecommerce and internet shopping tendency rise will mostly impact the retailer section. (Doherty & Ellis-Chadwick, 2010).

“The seminal act of e-commerce” is considered an action of selling cannabis between Massachusetts Institute of Technology students back in 1971-1972 (Markoff, 2005). In the first several decades e-commerce did not evolve in a fast and efficient way. The main reason for the stagnation was the technology limitations and foundation building, which was needed to ensure secure transactions, data encryptions techniques, specified networks which could provide secure and reliable customer buying process. Furthermore, various government regulations, international policies were essential to control this new industry and prevent possible scams or misusage cases.

The most historically memorable events happened in the late 90s and early 2000s, which marked the creation of such companies like Amazon.com, eBay and Alibaba.com. At the same time, the industry started to show signs of huge potential greatness, reaching the worth over 150 USD in 1999 (Terzi, 2011).

The following growth tendencies carried out through the years and reached a point in which the industry might soon be borderless.

1.2. E-commerce global and local growth

This section will cover ecommerce tendencies in global and local context. Such tendencies will provide additional insights of possible opportunities and/or threats that local ecommerce businesses face.

1.2.1. Global growth and tendencies

Nowadays e-commerce presence and influence can be felt daily both, globally and locally. Companies like Amazon did not exist 20 years ago and by basing their business strictly on electronic commerce were able to become leaders and now are on the top 3 highest valued companies (along-side Microsoft and Apple) and one of the most globally known brands with over 280 billion USD dollars turnover per year (2019 data according to statista.com). What is more important, from the statistical analysis it can be seen that there are no signs of possible stagnation – in the past 12 quarters (3 years), there was only a single case in which the revenue decreased between quarters (from Q4 2017 60,5 billion in revenue to Q1 2018 51,04 billion). All of the other 11 quarters seen a positive increase in revenue and in total, from Q1 2017 to Q4 2019 the revenue of Amazon increased by 144,86 percent.

With the current projections it can be stated that impact and influence of the entire ecommerce sector will only grow. Based on Statista 2020 research, it is expected that the in the next four years the global e-commerce industry will continue to rise and almost double (from 3 535 billion to 6 542 billion). Technological advancement gives businesses the opportunity to collect and use more different data, mobile revolution provides additional strategies and even more potential customers and it's clear to see that society is leaning to more and more easy, fluent buying approaches. For these kinds of reasons, it is expected that the industry blooming period will extend and will not be limited to several years.

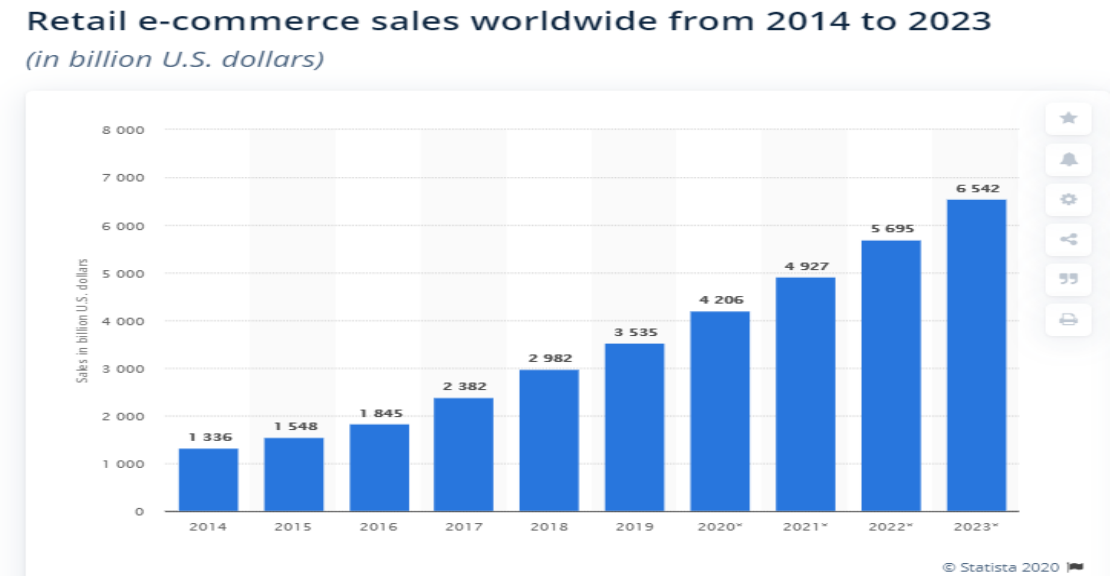


Fig. 1. Retail e-commerce sales worldwide 2014-2023 (from statista.com)

The following information provides insights about the industry projections, which shows that ecommerce will not only continue to have a high level of public importance, but it also shows that the relevancy will increase over time. Due to such tendencies, it is essential to investigate possible problems and opportunities more deeply.

1.2.2. Local growth and tendencies

According to Department of Statistics in Lithuania (2019 report), in 2019 Q1 46% of Lithuanians used e-commerce for personal purposes, 83% of those users made up to 5 orders. Products which were acquired vary from clothes and sporting accessories, household equipment, daily necessities to tickets and rental of premises.

According to "Statista" 2020 data, in Lithuania the accumulated revenue in e-commerce reached 679 million euros. From 2019 to 2020 the increase was 10.5 percent. No slowdowns or obstacles are currently visible, for the reason the projected average annual growth rate in 2020-2024 is 6.2 percent, which would result in the market volume of 865 million euros by 2024.

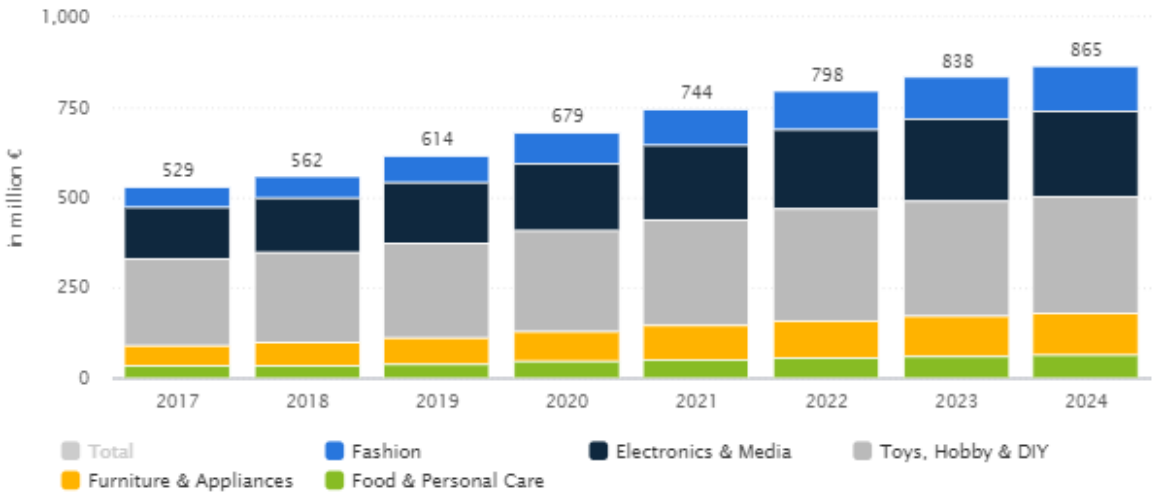


Fig. 2. Retail e-commerce sales worldwide 2014-2023 (from statista.com)

In 2018 Pricer.lt (a meta search website which aggregates all the data from Lithuania's e-commerce businesses and provides pricing comparisons) provided an interview for Delfi.lt in which they discussed about Lithuanian ecommerce tendencies. One of the key mentioned factors were that in 2018 in 3 months the total count of online shops based in Lithuania increased by 50 percent (from 400 to 606). Additionally, it's mentioned that the number varies quite often – new stores cannot get established in the market. Top visited sites mostly are established by big companies, those who started their businesses with physical stores and currently has enough resources to make winning strategies.

However, according to Lithuanian ecommerce tracking tool (internetoparduotuves.lt) the most visited e-commerce site for the past several years in Lithuania was Pigu.lt, which historically did not have physical stores or presence and was strictly focused on e-commerce. Such (Amazon) and local (Pigu.lt) examples, provides valuable insights and notion that physical presences history is not needed in order to strive in e-commerce industry and have continuous growth.

Furthermore, according to "eshopworld.com" analytical "Lithuania eCommerce Insights" report (2018) it is seen that not only the market volume will continue to grow but also the number of online shoppers in Lithuania. Current trends and the projection can be seen in the Figure 3. By the end of 2022 the total number of online shoppers in Lithuania should reach around 1.8 million. These tendencies provide valuable information which leads to the assumption that ecommerce importance and the impact in our daily lives will continue to rise in many ways.

Fig. 3. Number of Online Shoppers in Lithuania (compiled by eshopworld.com)

Because of the previously mentioned information it can be stated that Lithuanian ecommerce growth and the projected growth in online shopper quantity not only provides exponential opportunities to local businesses, but also carries certain risks. The bigger market size eventually means a greater attention from global leaders, from which the existential need to create a competitive advantage rise.

1.3. Local market retention

Reaching yet unreached potential customers is one of the great edges of electronic commerce, but far not the only one. Apart from the several disadvantages, like shipping time and duty costs companies in this industry currently have ability to compete with each other without any physical presence. It provides growth opportunities, nonetheless, additionally provides many threats. One of them might an inability to compete with international rivals in the local context. In the article "The 'Amazon Effect': How Ecommerce Will Change in 2019 and Beyond" it is discussed what issues might occur in ecommerce the near future. Due to the evolving industry and the rapid rise of global leading ecommerce companies an issue occurs to local ecommerce providers. The inability to compete in pricing (because of the different product quantities) and the technological advancements provides a reasonable basis to discuss local ecommerce extinction possibilities.

According to "Kauno Diena" article and statistical data (2017), in this vastly growing industry in which users tend to use the given opportunity to purchase certain products/services from companies

which are stationed in different parts of the world, Lithuania has really visible threats. The European Union average of users who at least once bought goods from an e-shop, which were not based in their home country is around 52 percent. In comparison in Lithuania, this number is a bit over 75 percent (Kauno diena, 2017). That means that the local physical and digital companies face a threat, which is connected inability to compete with international e-shops who are attracting Lithuanian customers. According to "DPD Lietuva" representative such high percentage difference is because of low variety of goods, low purchasing power and technological comfort, easiness which is being provided from international companies. 61 percent of respondents choose China e-shops as a replacement for local Lithuanian shops. The front runner and the most popular non-local site is "AliExpress", which has around of 13 percent of recurring Lithuanian customer. The second and third alternative countries are Great Britain (48%) and USA (36%).

Such difference in non-local purchasing habits between Lithuania ant the rest of European Union signals that there is a sufficient need to explore this area as it threatens the extinction of Lithuanian ecommerce due to inability to compete with international rivals. By trying to identify the potential causes and purchasing habits there is a need to create and share possible guidelines and/or insights which could help local businesses to grow or compete.

1.4. Local business growth opportunities

Ecommerce creates a competitive environment without concrete boarders. Rapid technology advancement provided a new, in the previous years, unseen phenomenon. It created the ability to reach formerly unreachable potential buyers. These potential customers currently are being counted in billions and by 2022 "Oberlo.com" estimates that additionally 3 billion potential buyers will arise from emerging countries and yet untouched regions. This will happen due to internet access growth, people who currently do not have the ability to make purchases online, eventually will. Furthermore, ecommerce provides opportunities for companies to make an entry into more saturated markets and try to consolidate their presence.

Expanding both, domestically and abroad is one of the major benefits of ecommerce. Lithuanian companies alongside all the other global players have an opportunity to use this rising trend to their advantage and expand their influential zone. In 2019, first steps in this direction were made. The biggest ecommerce site in Lithuania – "Pigu.LT" expanded their impact area by launching a marketplace-based trading platform which invites small businesses from the Baltic countries to join and sell their products. Delfi.lt named this process as "seeking to become Baltic Aliexpress".

But yet this step was one of the first ones and one of many possible ones. The fact of the matter is that the current situation and presence is low due to lack of insights and knowledge on how companies could compete with major players in different regions and use this industry's greatest benefits to their own advantage.

Although, the study is focused on providing insights on how local companies could create a competitive advantage in the local context and solve the potential problems that global entrants might have, the finding might be used in cases to create and initiate local ecommerce expansion. These opportunities are limited and are linked with the problem through competitive advantage.

1.5. Political importance and context

The rapid growth and further development of ecommerce leads to a significant political emphasis. The initial foundation for ecommerce was set with directive 2000/31/EC and in some way's certain articles and the most importance to this day. However, as the industry shift and improves so does the regulations and political guidelines. According to official European Commission, the goal is to create an environment in which all of the current barriers would be eliminated, so that people could enjoy the full extent buying online and use all of the benefits that eCommerce creates. This goal is planned to be achieved via these changes:

1. Eliminating the unjustified cross-border barriers, which previously prevented users to buy from another EU state. New regulations entered into forced on 2018/12 which prevent online sellers the opportunity to treat EU customer with equality.
2. Higher data protection emphasis on all EU citizens, which entered into force on 2020/01. These new rules are designed to provide better and transparent data protection, which will ease the process of data removal.
3. On 2018/05 new rules regarding cross-border parcel delivery services were set in place. The objective of these rules to eliminate unneeded problems which were identified by online companies. Such as several times higher cross-border parcel delivery prices.
4. Additional Value Added tax change will be set in order by 2021.

President of the European Commission, Ursula von dar Leyen, in 2019 political guidelines stated that a significant emphasis will continue to be given to digital services and platform in order to assure accessibility, safety and liability. That will result in a creation of a new "Digital Services Act".

Political context shows us the global emphasis on ecommerce will continue to grow and as a consequence there will be a higher need to differentiate and compete with international rivals and entrants. However, it creates additional opportunities for Lithuanian businesses to expand abroad and provide more benefits to Lithuania in form of jobs, taxes payed and attracted investments.

1.6. Final problem formulation

Local and global industries growth tendencies show that buying online will continue to be one of the major necessities in today's society. Due to rapid growth and the current technological waves that requires companies to shift their focus from local to digital space, ecommerce will stay as one of the most important and relevant topics in the near future. This also can be underlined by looking into the political context, especially from the recurring messages and changes that the European Commission release.

The technological and political development aim is to lead the industry to more accessible and equal usage of all ecommerce created benefits. These tendencies cause potential threats for Lithuanian companies in competition with external rivals, which possibly will sharpen with the growing local market. The continues and constant attraction of Lithuanian customers to global online stores threaten existence of Lithuanian ecommerce. For that reason, it seems necessary to deeply evaluate how local companies could use these tendencies to their own advantage and by creating a competitive advantage not to succumb to pressure.

Additionally, by creating a competitive advantage local companies could open the door to global expansion and form usable opportunities.

2. Defining added-value structure in theory. Roadmap to competitive advantage.

In the search for a solution to the main study problem (trying to compete more successfully in the local market with global rivals), the "Added-Value" theoretical concept was chosen. The following theoretical concepts were considered as alternatives: "User experience", "Competitiveness", "Value proposition", but due to certain constrains as:

- limited ability to identify if pricing/product quality/shipping rules can be beneficially modified
- limited scope of a certain concept as User Experience, which does not provide insights how impactful this concept might be to the end-consumer decision making process
- Minimal theoretical data and/or huge differentiation between agreed definitions

The previously mentioned alternatives were rejected.

2.1. Added value definition in ecommerce

Nowadays there are a lot of easily accessible tools, platforms or techniques to setup and create e-commerce businesses. The lower level of complexity and the natural human progression towards faster purchasing process creates a perfect match between supply (possible e-commerce websites) and demand (willing to buy customers). Because of that it is essential to differentiate between the competition and create a sustainable edge in this highly turbulent industry.

From the rationale perspective, companies who manage to succeed in this highly turbulent and competitive industry tend to provide simply more than a product, but rather a process, experience providing with overall satisfaction which can be memorable and reproducible or providing a sense of security and integrity. The simplified and well-known term to describe this phenomenon is called – added value. The main objective in the current e-commerce competitive field is to provide more value for the customer apart from the product or services he or she is willing to buy. This value can be created in numerous ways according to various different sources (Čiarnienė, Vienažindienė & Vojtovich, 2017 ; Tsao, Hsieh & Lin , 2016 ; Gothelf , 2017), which might include – customer experience, personalized approach, more fluent buying process, cross-selling, privacy statements and confidentiality and much more. Since added value is not globally narrowly defined, this section will provide an in-depth analysis of theoretical material and provide a clear definition which will be carried out through to rest of this study.

2.1.1. Added value creation. The process of refinement.

There is a point of view that added value specifically occurs from the ability to measure process efficiency, spot the needed patterns, data points and after interpreting them correctly making the needed adjustment. It is believed that this kind of process must be continuous and iterative while keeping an open mind to further improvements. Čiarnienė, Vienažindienė & Vojtovich (2017) state that due to external factors and circumstances (like competition, technology advancement, product count, service flexibility) companies must have the ability to measure their process efficiency and make data driven decisions to refine them in order to increase access to a particular service or product, improve convenience, user satisfaction or provide a sense of security and that way meet the expectations of today's society and customer needs. The firm's commitment to product and/or service quality and iterative improvement is considered one of the main six identified successful rapid growth factors and competitive edge creation (Feindt, Jeffcoate & Chappell, 2002). Chakraborty, Banerjee,

& Singh (2014) adds that refinement, especially in web related services, is the improvement of the current product or service state, which can even be the platform on which the user makes a purchase. The process itself is focused on the goal which should eventually lead to a better level of end-user satisfaction. By having the ability to measure the needed factors, compare, prioritize them and make data driven improvements, gives companies the ability to gain a competitive advantage and create additional value through the process of refinement.

Additionally, "non-value added" activities prioritizing is up most important. Ineffective cases are quite common and typically are present in almost every organization: unreliable information, imprecise communication and imperfect processes. It is stressed that it is necessary to evaluate the possible impact of value added and non-value-added activities and prioritize process improvement in the most impactful way (Čiarnienė, Vienažindienė & Vojtovich, 2017).

2.1.2. Added value through customer perspective

In the following sub-section literature, which covers added value through customer perspective, will be analyzed. The purpose of such analysis is to identify which different dimensions/aspects are present in added value and define a narrow definition which would be used for further theoretical analysis and later on in the empirical study. By identifying the added value dimensions, they will be used as a foundation for added value structure and further deeper analysis.

Tsao, Hsieh, & Lin (2016) indicates that process development not only provides functional, technical benefits, but also has a beneficial impact regarding consumer/seller relation building. That means, that the buying processes becomes more satisfactory for the end-customer and in addition the customer perceived value accelerates even more due to closer relations and connection. Which can eventually grow to various beneficial additions for the firm. Gothelf (2017) touches on this topic and provides insights how companies can use created intimacy to their advantage by exploiting customer expertise to their own advantage. In the simplest sense companies can get valuable information from friendly conversations if they choose to prioritize continuous learning over delivery and selling. The gain which could be achieved from tight and natural customer relations can exceed normal conversations and knowledge sharing and lead to various initiatives like crowdsourcing, crowdfunding, crowd voting and crowd creation, which can provide a company with:

- Needed new ideas
- Funds for kick offing a new location, product or service
- Helping to make business decisions
- Helping to create a new product or/a service or improve an existing one

The ability to share not only data but additionally provide willing analyzed insights can help companies to create better datasets and provide more accurate and impactful decisions (Nelson, 2014).

Zheng, Yu, & Jin (2017), express the need of customer relationships and provides and in-dept analysis about non direct value which arises from positive relations. By having the ability to build inner user - relationships businesses can open potential, which is not only connected with loyalty, but also goes beyond and can improve on customer perception of the product or service. Two types of relationships are being evaluated: instrumental and expressive. Instrumental relationship is a form of connection which is based on the consultation relations and expressive relationships tend to be more intimate and perceived as a friendlier and closer connection. Both types of relationships can provide a different in-

direct added value for the customer and can adjust their perception. Consultation relation tend to provide more fullness and richness to the end-customer about the information which is being spread by the company. This can be perceived as a huge benefit especially taking in the account the current state in which the flow of product/service is enormous, and companies seek to differentiate. Expressive relationships tend to increase credibility of the information, which could be used as a powerful tool in customer decision making process. Additionally, it can result in the ability to build a recurring customer base and move to more psychological need, from the customer point of view, to sustain the relationship (Zheng, Yu, & Jin, 2017).

It is believed that loyalty creation trigger was the fact that customer perceived value was bigger in certain companies than others and customers shifted their recurring buying power. Nowadays it might seem that loyalty is one of the added value dimensions but authors of "Customer-perceived value and loyalty: how do key service quality dimensions matter in the context of B2C e-commerce? (2016)" argue that they both co-exists together and typically loyalty is a rather a consequence of added value. By evaluating five major quality dimensions, (which can be seen in Figure 4) direct correlations between added value and customer loyalty were found. However, the impact itself differs – some dimension has a higher impact ratio than others. Added value in the effect of usability, convenience and reliability partially correlates with customer loyalty (Jiang, Jun & Serv Bus, 2016). Ghouri, Hussain, Afzal & Rasheed (2018) discusses the added value from the perspective of security and privacy standpoint. The authors stresses on the point that such factors should be considered as several of the most important once, because they highly influence the consumer buying decision and has a substantial effect on business growth. Consumers tend to hesitate to move forward with a purchase if they are not sure if their personal information will be stored safely or they have doubts about the monetary transaction safeness.

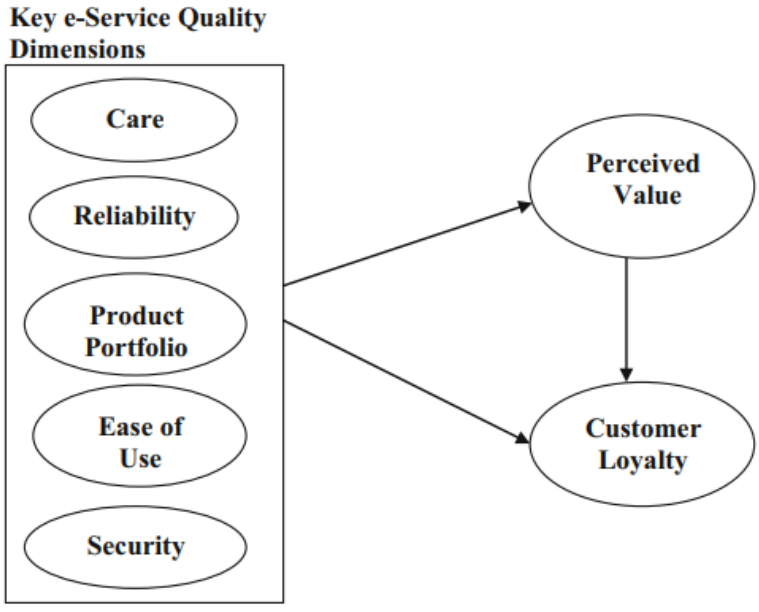


Fig. 4. Perceived value correlations (Jiang, Jun & Serv Bus, 2016).

The lack overall quality which is directly linked with the buying process flow is considered one of the main reasons why electronic commerce businesses fail to establish themselves and please the customer needs despite the broad product selection, fast shipping guidelines and other great strategic

decisions. Because one of the most important pillars of ecommerce is related with customer convenience and ease of use (Han & Noh, 1999). In 21st century typically it is referred to user experience. An especially relevant topic because in today's society time is considered as one of the most valuable assets, for that reason a big emphasis is given on the users' time saving, which alongside other factors can contribute in creating a competitive edge, differentiating or creating a competitive advantage.

Due to the limited scope of this study it was chosen to group together added value categories into main dimensions. For that reason, closely related topics will be examined together as such:

- Convenience, usability, memorability and the ease of use will be looked and analyzed from the from the user experience side
- Privacy will be investigated alongside confidentiality
- Security and safeness will correlate
- Care will be examined alongside trust building and customer relationship
- Reliability will closely relate to credibility

2.1.3. Added value through technical perspective

Sloss, Nukala & Rau (2019) singles out the importance of technical measurable indicators. The author state that by offering a particular product or service online, it is crucial for businesses to find, measure and improve on technical oriented parameters. Such parameters should be objectively measured. That kind of evaluation and measurements adds a layer of independence and in comparison, with social research, minimizes the need to make certain assumptions. Authors define some measurable cases in user experience and reliability. If such cases are measured and improved iteratively the improvement directly can impact the business and its growth. Fenton, Gallagher, Heinze, Fletcher & Griffiths (2020) adds to the topic that such indicators are one of the key parts to conducting and executing a competitor analysis in this time and age. The approach of measuring technical oriented parameters can help companies to critically evaluate the difference between them and their rivals and can help to make weighted and rational decisions. The authors, stress on the point, that these decisions come from the comparison standpoint and companies that have weaker results in certain criterions can improve and, in some cases, create competitive advantage. In other cases, they can remove the competitive advantage that the rivals had against them. The comparison can be carried in a way to provide evidence, for that reason publicly accessible tools can be usable. The authors, single out several dimensions that can be measurable up to a certain objective limit – User Experience, Reliability, Security.

Whittle & Confreaks (2015) provides additional thoughts about how customer perceived value correlates with technical performance. In fact, the authors state technically measurable parameters have a direct impact on business revenue and the bottom line if the businesses succeed or not. One of the given examples was about one of the biggest web browser providers – "Mozila". Once the company shortened their landing page load time by 2,2 seconds, their downloads increased by 15,4%. Which is 16 million more downloads because a site is a bit faster. Similar patterns have been found in a lot of different cases, which even include Barack Obama's website before the election. By increasing the website speed 60%, a 14% higher donations conversation rate was visible. This example provides insights that the power of technical measurements is highly impactful in various scenarios. By diving into ecommerce, the impact of technical parameters increases. The authors state

that by decreasing the waiting speed by 0,1s for the end-users, Amazon.com achieve around 1% increase in revenue. Additionally, it is mentioned that the speed changes and possible achievements and results are highly impacted by the current website performance. If the website has 1s loading time, then 0,1s decrease might by impactful. The end-user would feel a more fluent navigation and consciously or subconsciously feel the benefits. But if the total loading time of a particular site is 10s, then this minor improvement might not be noticeable and would barely help. The authors, stress on the fact that slower websites provide multiple issues for the end-users, one of which is the inability to concentrate. This inability to concentrate directly impact the companies from the conversional standpoint. If the site cannot load in 3 seconds, around 40% of the initial users will abandon the website and search for more fluent process elsewhere. In analyzing the helpful tools Whittle & Confreaks (2015) mention "Google PageSpeed Insights" as one of the most trustworthy third-party metrics which help to understand and measure how users feel and see loading speeds. This tool analyzed an entered website and scores speed parameters. By comparing to Google's internal database, the speeds are ranked as slow, moderate and fast. Additionally, the tool provides hints on how the site can be improved.

Yanusha, Kartheeswaran & Lojenaa (2018) deepens the view by suggesting that the technical parameter-oriented research can be a complementary part to a questionnaire, survey or any sort of social research. Due to the fact, that results are being aggregated by two completely different approaches, the research findings can be more informational, usable and practical. The research itself provides different findings from different perspectives. The authors used "Google PageSpeed" and "Sort Scan" by measuring banking systems in Sri Lanka." Google PageSpeed" was focused on user-experience related measurements, while "Sort Scan" provides insights in website reliability field. These measurements in some cases provided practical justification for the opportunities that have risen been noticed from the questionnaire results and in other cases provided new possible competitive advantage opportunities. Fenton, Gallagher, Heinze, Fletcher & Griffiths (2020) adds to the topic by stating that a competitor analysis should consist of not only customer perceived evaluations, but also take into account technical strength and weaknesses, which typically highly influences the end-user subconsciously.

2.1.4. Added value to competitive advantage

In finalizing and concluding the found information about added value and in setting the concrete context at which added value will be analyzed, it can be stated that there are two main approaches which are acceptable to evaluate added – value: a social (customer perspective) research and technical parameter oriented research. From the theoretical research it can be stated that no global definition and/or structure exists for added value. For that reason, a narrow definition is being selected from the previous findings: **added value appears from the process of refinement of a product, service or process which increases the perceived value from the customer standpoint (consciously or subconsciously).** The process of refinement was defined as the ability to measure the needed factors, compare, prioritize them and make data driven improvements. Customer perceived value can be increased with (but are not limited to) the improvement of the following dimensions: security, confidentiality and privacy, trust building, customer relations, user experience, reliability. Such factor increases the probability to evolve and develop customer loyalty**.**

The definition can be visually seen in Figure 5.

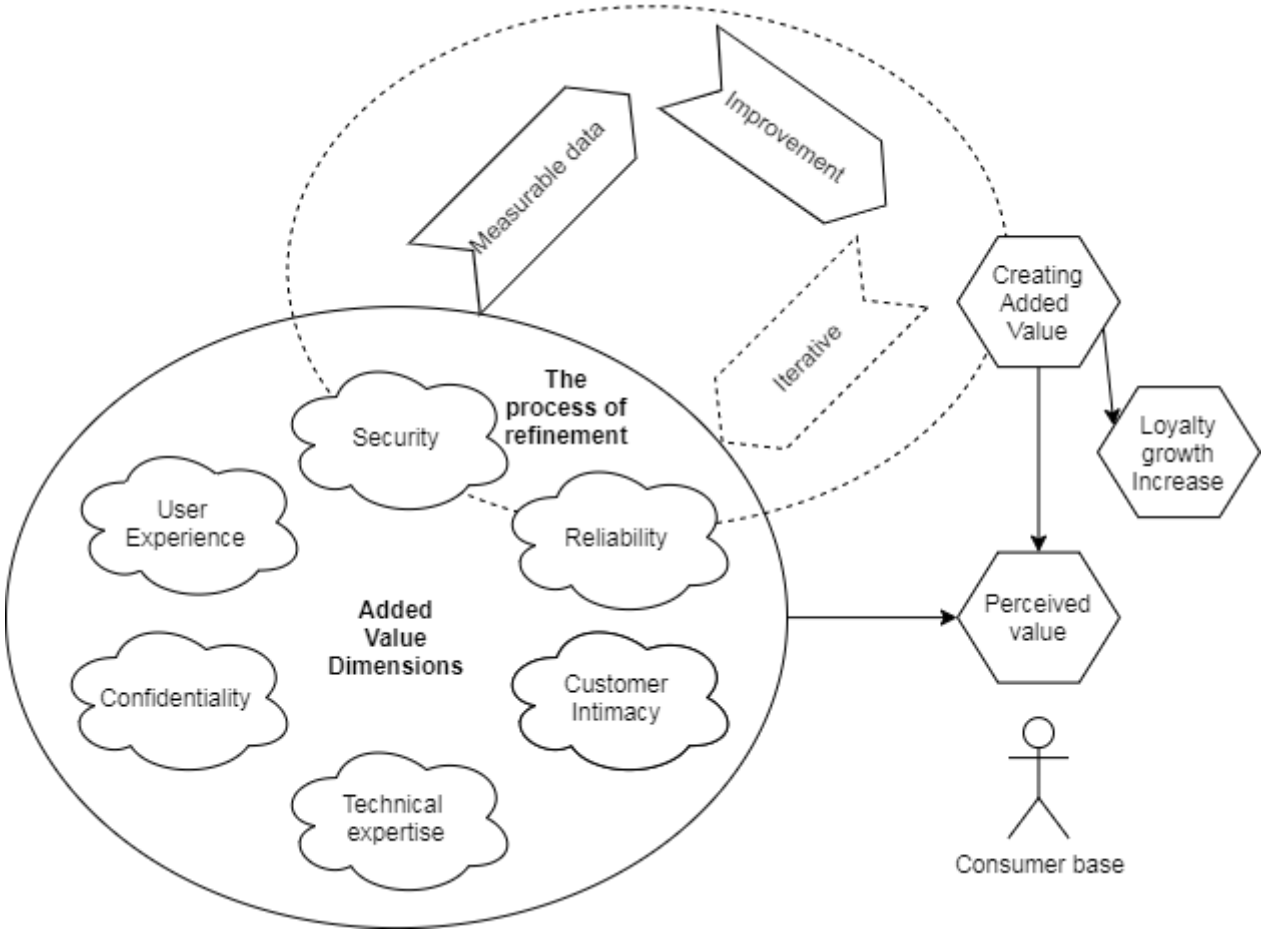


Fig. 5. Added value definition diagram (compiled by the author)

2.2. Added value dimensions

In the following section each of the added value dimensions will be analyzed: User experience, Security, Privacy, Reliability, Customer Relationship. Dimensions with their respected indicators and measurable items will be discussed. A narrow definition will be finalized and used further through the theoretical and empirical researches in order to solve the raised problem.

2.2.1. User experience

For the past several years one of the most usable keywords in the ICT sector is - user experience (UX). It became one of the core concepts of many various businesses and now is considered as one of the great assets a company can have. Yet scientific literature is not yet able to globally define UX size, impact and scope due to the fact that this topic has an enormous amount of complexity, abstractness and it is believed that it might be too difficult to objectively and uniformly measure UX as it involves to many perceptual interpretations and subconscious decision (Chou, 2018). Because of that reason user experience scientific definitions varies and there is no practical consensus yet reached.

From the broad perspective user experience goes beyond usability and is typically referred to an overall perception of a person which is using a particular product or service, providing a huge emphasis on how pleasant, memorable and user-friendly it is (Lallemand, Gronier & Koenig, 2015). The key is to fulfill the emotional need of a particular user in order to trigger revisits due to memorable experience. Certain system restriction can have a negative impact as user might show unfavorable psychological responsiveness which can highly impact the chances of recurring purchases and overall growth. The understanding itself can be defined with many broad in-direct psychological constructs as sight, smell, lighting, user motives, color interaction and even thoughts (Jung, Kaß, Schramm, & Zapf, 2017). Hellweger, & Wang (2015), tried to concretize user experience by assigning all the related factors and definitions into main three operation dimensions: user perspective, product view and interaction. However, given the complex nature of UX the initial tasks failed and in a systematic evaluation a of total 114 related keywords were aggregated and assessed. 12 prime elements were found: memorability, ubiquity, perception, emotional state/mood, engagement, educational, purpose, cognition, needs, product properties, context and usability. Several of these elements are produced by user experience and others affect user experience improvement or is the main cause of UX emergence. The coherences between various elements can be fully seen in the visual representation (Fig. 6).

Chou (2018), summarizes UX and broadly describes it as an intangible process which happens in the consumers mind in the first seconds of interaction and is influenced by that moment's perception of the surrounding world. Everything from emotions, personal characteristics, faith, desires, attitude, awareness, viewpoint, impression should be taken into account when describing the response which the user/customer aggregates in a result of using a service or product.

Additionally, user experience can be viewed also as an affective and cognitive process which creates a response when the user is stimulated. This point of view creates additional correlations with the user mindset and intuition (Mahut, Bouchard, Omhover, Favart, & Esquivel, 2018).

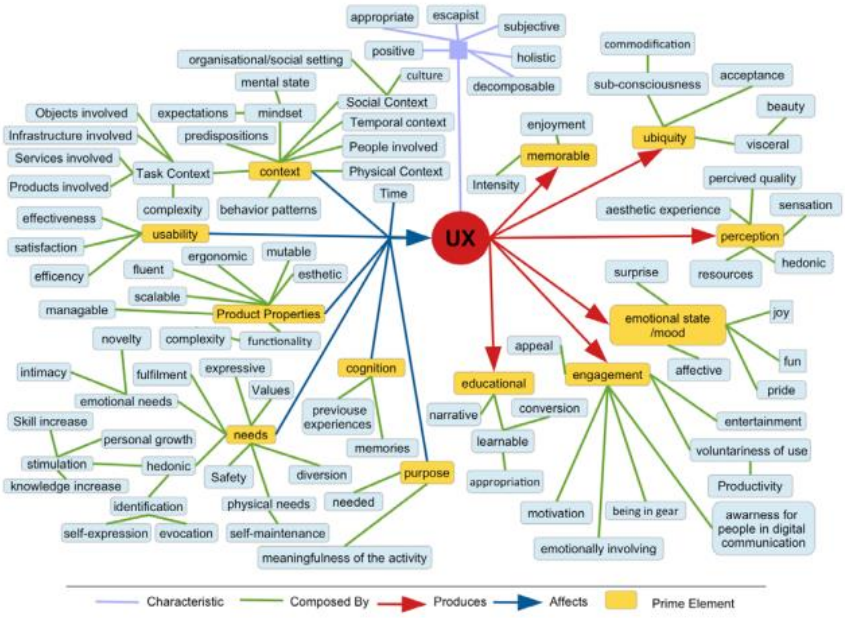


Fig. 6. Broad UX definition (Hellweger, & Wang, 2015)

Suojanen, Koskinen & Tuominen (2015) argue that user experience changed a lot of previously used keywords like functionality, usability, usability engineering and user-centered design but goes back

to their roots as one of the key contributing factors to the successfulness of user experience is defined from the products ability to be memorable, usable and emotionally pleasing. For that reason, the authors distinguish two user experience concepts – broad and narrow. Narrow concept is more product-oriented and focuses on direct coherency rather than intangible or unmeasurable connections. The product-oriented stress points are connected with practical measurements like product or service costs, reliability rating, compatibility with other systems. The most difficultly measurable point is usefulness, which divides into two subcategories – utility and usability. Utility is subjectively evaluated, but if a user uses the system for a particular goal and assumption can be made that utility is present. Usability focuses on memorable, fluent experiences.

Additionally, Bollini (2017) emphasizes on the importance of user interface and representation of so-called visual language. The necessity of following the visual standards in the market is a must for user acceptance. For that reason, the novelty of the design is an additional step in practical acceptance.

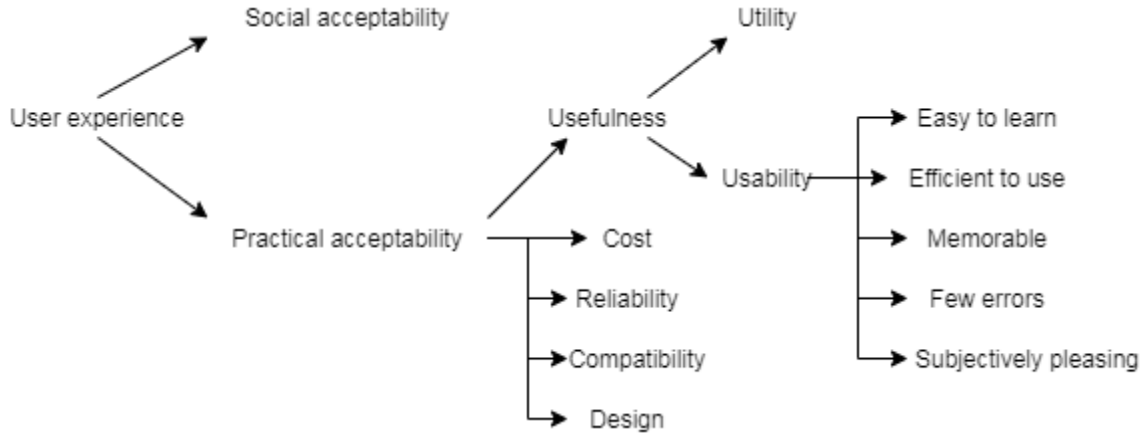


Fig. 7. Narrow User Experience definition (compiled by the author)

Taking in account the limited scope of the study, the narrowed approach which will be used in carrying out the further research is represented in the Figure 7.

2.2.2. Security

In the growing dependence of electronic commerce various topics have risen and gained a significant importance. One of these topics is security. Due to consistent growth in users, ecommerce as an industry had an increasing need for basic and fundamental security functions. Such as secure payments, environmental flaws, network infringement, phishing, data leaks because such action could be abused with malicious intent. It was believed that these issues might harm further electronic commerce development and prevent users from proceeding with the online purchases (Yaojun & Shuning, 2013).

As the basic security fundamentals prevented electronic commerce stagnation up to this day it is considered as one of the most important topics. Additional techniques, tools and methods for malicious intent are consistently developed and used. Because of that reason security is still considered one of the mail pillars of electronic commerce. According to statistical data around 60 % of people still worry about the security payments (Yaojun & Shuning, 2013). Fuqing & Guohong (2011) identifies these main security issues:

1. Network issues, which in a broader sense, touches topic like penetrable ecommerce software and server security issues.
2. Transaction issues, which in a broader sense, touches on the fact that there is no physical presence in ecommerce trade, which provides opportunities for attackers to steal and use other people identities.
3. Information issues, which in a broader sense, touches on topics like data stealing, information counterfeiting, information loss due to hardware failure.

These main categories of security problems can occur in different parts of the system and in different forms. Fuqing & Guohong (2011) additionally touches on this topic and lists five forms of ecommerce security:

1. Physical Security - which summarizes hardware security and internal system accessibility. Determining how secure is the physical server in which the website is hosted.
2. Information Security - summarizes the general technical problems and the likeliness of false information advertisement.
3. Content Security - the impact and the possibility of an external script or virus damage to the sites content and internal records.
4. Operational Security - involves employee's guidelines and internal processes, which should include authenticity, traceability, stability and reliability.
5. Management Security - involves security management, correct accessibility and the minimization of unsafe factors in the organization.

However, the previously mentioned main security issues and main forms of security are related to perceived security form the business standpoint. Typically, the customer, consumer or a visitor does not have enough knowledge and insights of such in depth processes and is not able to see, feel or asses such security categories. The online buyer tends to formulate a belief of security and safety which is directly connected with actions he or she initiates – transactions and information handling procedures (Hartono, Holsapple, Kim & Simpson, 2014). Due to the nature of the study, which is to analyze and determine how companies could create additional value for the end-customer, customer perceived security will be defined and used from this point.

According to Hartono, Holsapple, Kim & Simpson (2014), the customer perceived security should be divided into 4 constructs. These constructs and the definitions can be seen in Table 1.

Table 1 Customer perceived security definitions (Hartono, Holsapple, Kim & Simpson, 2014)

Constructs	**Short name**	**Definitions**
Perceived confidentiality	PC	Online buyer's belief that his/her transactional information will not be disclosed to unauthorized party
Perceived integrity	PI	Online buyer's belief that his/her transactional information will not be altered by unauthorized party
Perceived availability	PA	Online buyer's belief about the online seller's ability and willingness to make information available and authorized subjects when required
Perceived non-repudiation	PNR	Online buyer's belief that the online seller cannot afterward deny the transaction that has been performed

2.2.3. Privacy

Fundamentally, privacy and confidentiality take into account the collecting, sharing, storing and using all online buyers' personal information and additional data regarding their usage. Privacy as a whole defines that the user has the right to control the data which was collected from his or her usage. That might include (but is not limited to): name, surname, address, transactional details, bought products, search/actions history (Mubarak, Zyngier, & Hodkinson, 2013).

Privacy concerns and importance has risen in the past years, political decisions like General Data Protection Regulation, which was implemented back in 2018, have tightened the rules in which ecommerce business must handle and secure customer related data. Privacy issues and confidentiality are closely related to the total perceived risk the online buyer forms before making a purchase (Metzger, 2007). Mohammed, & Tejay (2017) adds to this topic by defining that user perceived privacy concerns have a negative impact how the user perceives safety and thus lowers the ecommerce acceptance probability, which is needed in order to fulfill a willing purchase.

Mubarak, Zyngier & Hodkinson (2013) evaluates that privacy and confidentiality perception closely relates to security and originates from the three main categories:

- Information technology systems. The way transactions are being handled, is up to date technologies and methods are being used, ensuring personal information storage and transparent communication regarding the processes.
- Accountable business practices. How organization deals with unforeseen cases like leaks, new regulations, shifting tendencies and how professionally staff works with data and what procedures are implemented regarding user data.
- Physical design. How and where privacy policies are stated, how transparent the process feels and is communicated to the customer.

Anic, Škare, & Kursan (2019) recently studied privacy in a sense of the most typical concerns that individually online users face. These concerns include an exact fear of information selling of leakage and more broader experiences when user visits the site, tends to have certain information control preferences. Huancheng, & Liu (2012) adds that privacy is one of the most important and natural human rights which correlates with dignity, respect and a presence of peace of private life. Privacy issues might hinder ecommerce development if there are not dealt with professionally. Ecommerce users face particular fear regarding online shopping, these fears might include (but are not limited to):

- Fear regarding information privacy (name, surname, ID number, habits, physical information, birth date, address, phone number, marriage status, education status, financial information, interests, family information, religious information, social data)
- No visible privacy awareness from the ecommerce side
- Individual need to control and handle private information
- Governmental regulation compliance
- Fear of identity loss of personal information fabrication
- Fear of inability to control personal information
- Fear that personal information will be shared or sold

Huancheng, & Liu (2012) also discusses the possible customer assurance and risk minimization regarding privacy concerns and fears. Author states that personal information should be aggregated only if it intended use is centered around the action the online buyer initiates. For example, if a user

tries to purchase a product his address is needed for shipping purposes so reasonableness to collect the data is present. However, if the user is asked to add unrelated data it might cause a negative response and the increased perception of perceived fears. Secondly, websites tend to track a lot of information regarding user experience (travel path, spent time, clicks, search phrases and etc.) The business should clearly state what information and for what purpose is being collected. The statement should be clear, visible and provide consensus. Thirdly, ecommerce business should provide a visible emphasis on making personal information safe from external threats, leaks. This should be done through digital security, personnel professionalism and structure permission processes. Additionally, all data handling procedures should be according to legislations. Illegal dissemination or personal information sharing with non-disclosed third parties is not allowed and could damage company's reputation. And finally, companies have to power to raise privacy awareness and provide more self-protecting opportunities to the users.

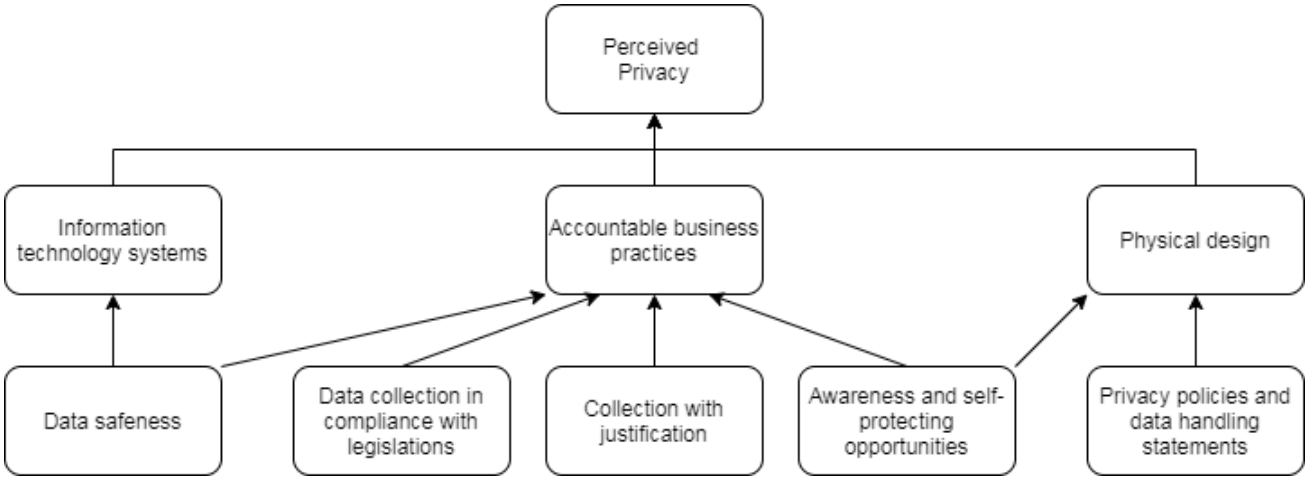


Fig. 8. Perceived privacy categories and influencial factors (compiled by the author)

Taking in the account previously analyzed literature and narrow privacy factors definitions, a diagram representing the defined factors is created (Figure 8). This information will be used in the research by analyzing and evaluating practical privacy tendencies for specific ecommerce businesses.

2.2.4. Reliability

Ma, Li, & Zhou (2014) approached and aligned reliability with broader term which customer perceives - ecommerce-oriented creditworthiness. The way in which creditworthiness is defined it can cover additional topics like authenticity and qualification. The general principle is to take into account all point of views that a potential online shopper would see and feel. Like how qualified the company is in selling certain products or services, what track record and legal records do they hold and show or how authentic the service and the company feels. For that reason, creditworthiness is defined by three main categories. Each category has its own indicators (Figure 9), which can be evaluated in one of the following ways:

1. By gathering data from users about their user experience
2. By the needed legal documents and track record
3. By companies' tendencies of changing and certain information
4. By various public algorithms and tools which aggregates and summarizes the publicly know data (ratings, feedback, reputation)

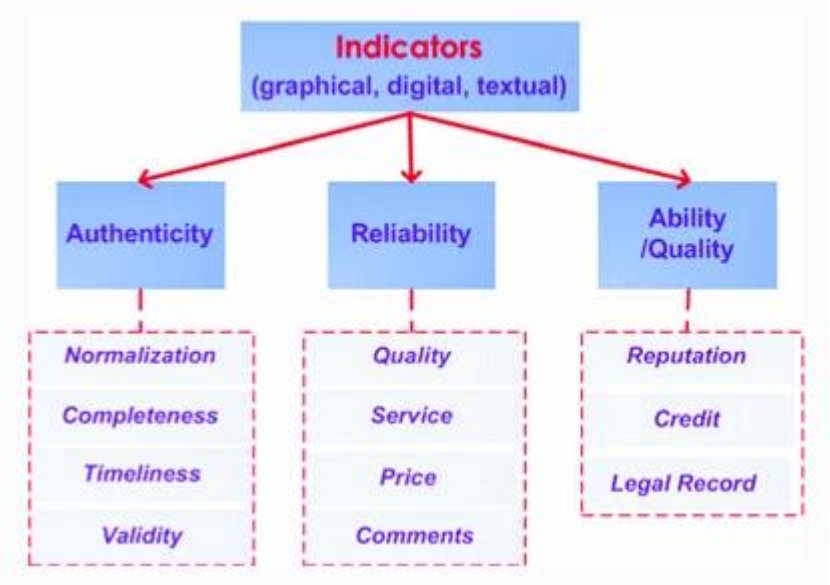


Fig. 9. Creditworthiness indicators (Ma, Li, & Zhou, 2014)

Bertea (2010) supplements the idea that reliability must be defined in a broader sense. The author stresses on a point that the consumer perceives reliability through risk factor. That means that a consumer goes through a list of possible risks and subconsciously defines priorities and determines the risk probability before making an online purchase. For that reason, stating that a service or a product could be considered as reliable, must pass the three main risk categories – financial, product and convenience. Financial risk category covers the ability rely on the company to deliver a product or service and charge a reasonable market price, keep personal information safe and provide secure transactions. Product risk category involves the credibility of the information (sizes, product descriptions), credibility of delivery time. Convenience risk category covers the time effectiveness and possible errors.

Soon & Abawajy (2012) scrutinizes trust systems, providing a list of actions which reduces the customer perceived reliability and minimizes the probability for an online purchase. One of the most important is the denial of service. It describes the inability to use normal online store functions (buying, searching, inactive components). Denial of service can occur due to lack of software or hardware quality or via a malicious attack. The most common willing attack is the activity in which the malicious individual tries to overload the network with highly unusual and heavy traffic. If a certain threshold of network usage is reached the online store might be inaccessible. In today's society consumer have multiple options, so such inaccessibility might be critical for a business. Companies can create systems which compensate or are able to handle extensive network load or have additional features (for example automatic service resurrection). The author suggests that one of the most important factors to this day is scalability. A scalable system is a strategic and technical attribute which allows an online shop to process and handle the increase of online users and buyers and more complex actions. In a growing ecommerce business interaction between various systems expands and becomes more difficult (warehouse systems, supplier and provider data handling). Thus, for the ability to provide and show credible information becomes more complicated process. Companies should be ready for scalability and iteratively determine the goals and make needed adjustments in storage, data processing and overall load handling.

Moreover, creditworthiness can be drastically impacted by informational leakage (technical or accidental) and credible user feedback. Without any human interaction feedback, ratings can be manipulated to make a positive or negative impact. Cases of impersonation (using another identity to provide feedback), misrepresentation (inaccurate, fake information) are quite common in ecommerce nowadays, because of that reason potential buyers tend to look for any signs of integrity and transparency. This kind of focus can result in the systematic or manual ability to detect malicious intent, remove false information and aggregate more personal and in-depth reviews.

Table 2 Defining and concretizing customer perceived reliability (compiled by the author)

Reliability	Authenticity	Normalization	Buying process and display of the information
		Completeness	Information fullness and accessibility
		Timeliness	Service uptime, time effectiveness, information updates
		Validity	Information reasonableness
	Offering	Quality	Current quality of the online shop and scalability history
		Service/Product	Delivery of the product
		Price	Reasonable market price
		Comments	Real, in-depth feedback and reviews
	Ability	Reputation	Feedback and ratings, certificates, security
		Credit	Positive credit history
		Legal Record	Legally approved

By evaluating different latitude definitions which were retrieved from scientific articles, a finalized definition with different level of broadness can be presented (Table 2). The original (broad) structure was used from a scientific article “An e-commerce-oriented creditworthiness service” (Ma, Li, & Zhou, 2014) and was modified, concretized according to previously analyzed scientific literature.

2.2.5. Trust and customer relationship

Back in 2012 the European Parliament stated that one of the biggest factors in reaching potentials customer was trust building (European Parliament, 2012). And the importance of trust, intimacy between parties did not decreased in the past years. On the contrary, as the ecommerce scene is continuously evolving such factors as trust, receive more and more attention, as it closely relates to business growth, effective utilization of opportunities and threat reduction (Radoslav, 2015).

Building up trust to a certain level is a prerequisite for customer relationship to be established (Papadopoulou, Andreou, Kanellis, & Martakos, 2001). Various studies have shown that relationship management and relationship commitment are one of the key factors to today’s businesses. Online stores can have the ability to create a stable environment in which business growth could be sustainable due to recurring purchases (Yoon, Choi, Sohn, Taylor, Charles, & Lee, 2008). Furthermore, N'Goala, & Cases (2012) described the full process flow and defined what arises from trust. It was discovered that several factors directly create user perceived trust, which eventually grows into a relationship and directly impacts user loyalty (Figure 10).

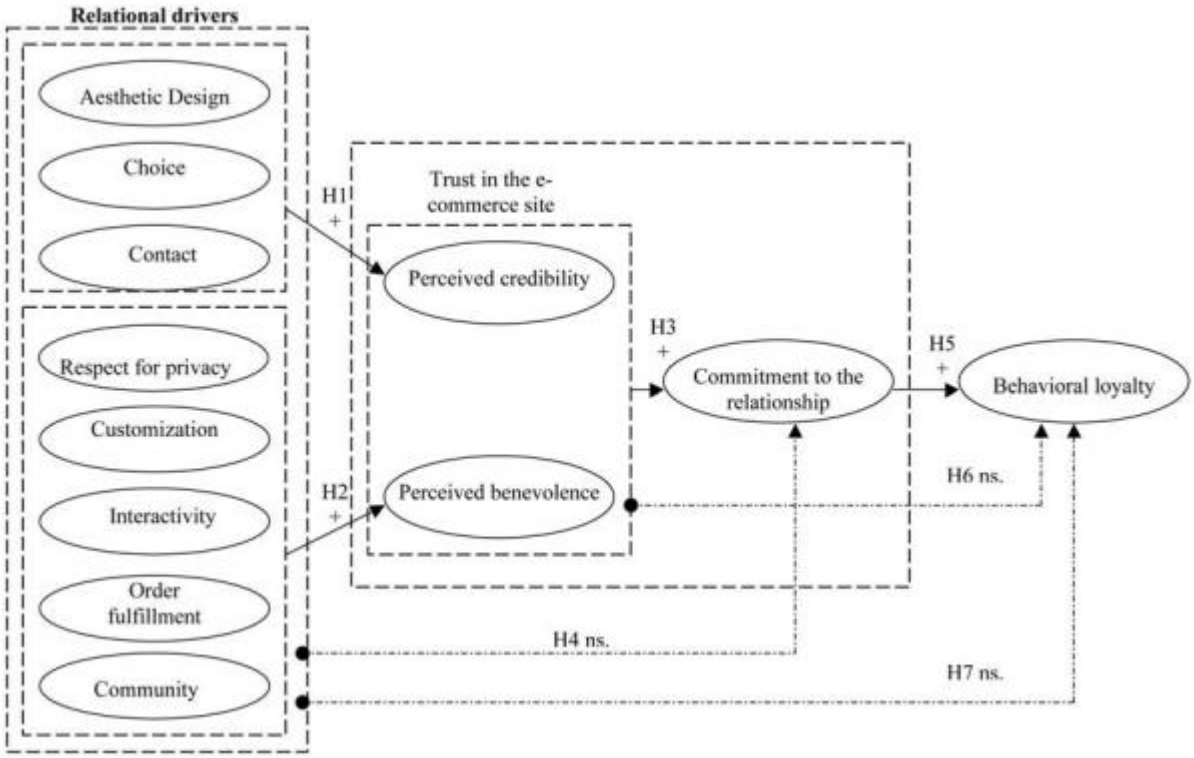


Fig. 10. Relationship creation flow (N'Goala, & Cases ,2012)

Additionally, it was found that trust has some direct links with relationship commitment and even loyalty. It was defined that deficiency in one of the trust factors can still create a sustainable trust image but can have a negative impact on relationship commitment. For example, commitment can be shorter or more easily breakable.

Zhou, Lu & Wang (2016) distinguishes two scientific concepts of trust:

- **Initial trust** which is the user perceived belief that the seller is trustworthy. It takes in the account user initial uncertainty and the inability to proceed with the purchase.
- **Trust building** (development) which is a tool that can be developed and used for business growth from recurring customers, brand loyalty and new opportunities

Liefa & Wang (2010) discusses consumer perceived initial trust in ecommerce and its importance. According to the author there is evidence that the initial consumer perception of an ecommerce business, leads to self-conscious intention which later determines the conscious willingness to procced with an online purchase. Aries & Younghoon (2014) proposes three elements that are responsible for the initial trust. The ability to meet customers' expectations in form of competencies and tasks, provide services with sincere goodwill and a natural desire to help the customer and do it with honesty and ethics.

Liefa & Wang (2010) adds to this topic by distinguishing what company actions typically are responsible for these three elements. Consumers tend to make a fast-first impression, because of that the initial trust evaluation stage is quite small in the time frame. The second consumer loads up the website this evaluation starts, for that reason the biggest focus is being given to firstly easily seeable parts such as the front- facing web, which includes the whole website presentation, colors, design,

layout. This part should be pleasant, reassuring and most importantly it should shine with quality. As will the user move through the site two additional categories will have impact initial trust. Firstly, self-trust-assuring arguments such as payment method guarantees, clearly stated and visible terms of condition, privacy policy could highly increase the perceived trust. However, email subscriptions, hidden components and/or information could be destructive. Secondly, internal and external (third-party) information should be valid and credible. This should include (but are not limited to): feedback, customer stories, comments, product descriptions.

Radoslav (2015) defines four main categories of trust building which can provide sustainable trust building evolvement in any ecommerce platform. The ability to openly show internal data (such as supply chains, product information) strongly influence the end-user's perception of the business he or she is trying to interact with. The feeling of transparency and overall sense of openness strongly influences the trust building process. Additionally, business must be ethical and have a strong self-regulation. Ethical limits should be set on how business is conducted, the values of the company and the employees should be visible. Furthermore, decisions should be done and implemented in a timely manner which could make the experience more interactive for the user. And finally, flexibility and the ability to make offer not just products or services but solutions and in-depth consultations. However, these solutions should be done in a timely manner and not hurt the overall selling process efficiency. Radoslav (2015) defined factors are represented in Figure 11.

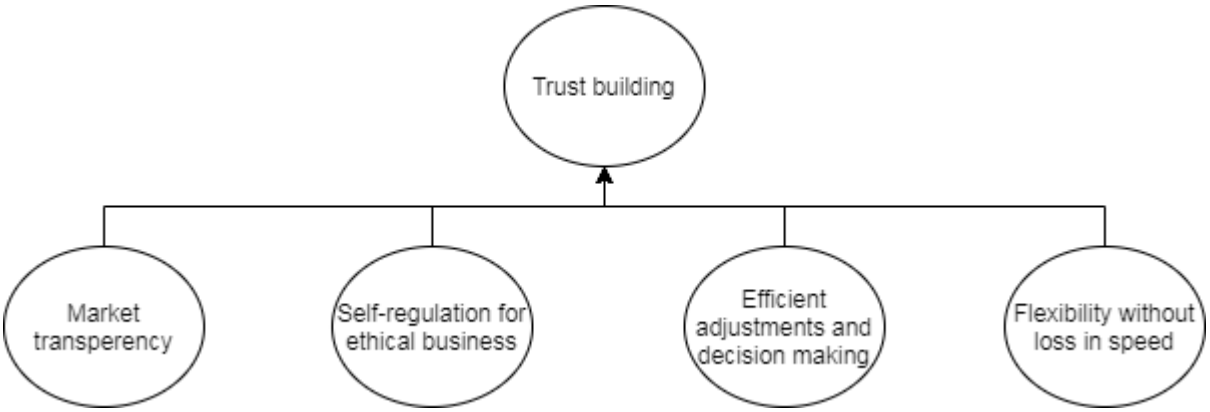


Fig. 11. Main for categories for trust building (Radoslav, 2015; created by author

In assessing trust building without any direct human interaction Serbu (2016) stressed on a point that self-regulation is crucial in order to reach a growth state which could be sustainable. Grumadaitė & Jucevičius (2014) noted that self-regulation is based on active interaction between parties which is:

- Engaged in a free will
- Has a natural and mutual interest on each other's behavior
- Based on communication, knowledge sharing and help
- Based on active monitoring of the system and overall experience which leads to elimination of factors, functions which damages the partnership.

Panya., & Ramingwong (2014) tries to concretize trust development factors and provide additional insights which gives readers the ability to understand how such factors are practically evaluated. Trust categories (Table 3) relates with precisely defined factors in a following way: customer service relates to market transparency, communication relates to self-regulation and ethical business, efficiency relates effective adjustments and flexibility relates to fulfillment of the customer need.

Table 3 Trust building factors (Panya & Ramingwong, 2014; modified by the author)

Customer service (after sale)	**Communication (contact & product)**	**Efficiency (Web site & purchase)**	**Fulfillment (web site)**
Warranty	Clear representation	Availability and stability	Easily findable
Return	Multiple channels	Security	Easily usable
Intimacy	Multiple information forms	Easy to buy	Clear and Accurate
		Acknowledgement	Suitable design

Due to the nature and limited scope of the study trust, customer relations and their connection will be defined in a narrow sense, according to the previous scientific literature in this section (Figure 12). This definition will be used in preparing, executing and evaluating research findings.

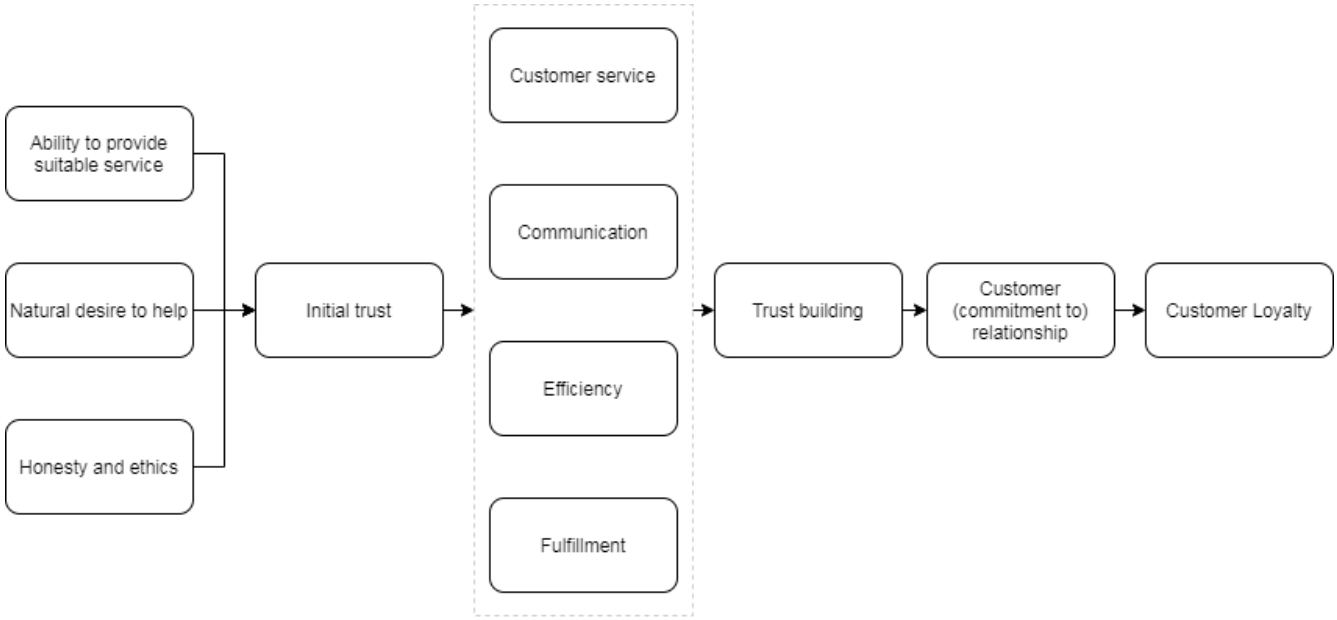


Fig. 12. Trust progression and definition (compiled by the author)

Trust progression and definition indicated that trust itself is not a dimension, but rather an influential factor in order to reach and build better customer relationship. Direct correlation can be visible, higher initial trust factor leads to a higher probability for recurring encounters and increases the probability to build trust and eventually achieve high customer relationship standards. For that reason, these key-phrases will correlate further through the study as each other's causative agent in Customer Relationship dimension.

2.3. Prioritizing added value dimensions

As the added value dimensions were defined, it is still unclear what potential impact to business growth some dimensions have in comparison with others. In order to provide practical business growth guidelines or competitive advantage opportunities, added value dimensions should have fuzzy hierarchy and be distributed to tiers based on their potential impact.

Sebora (2009) provided a questionnaire to ~400 e-commerce business owners which were based in Thailand and had a successful ecommerce business for at least two years. The questionnaire consisted of fifty-nine questions which were focused on what specific factors positively impacted their ecommerce business. Most common answers were divided into two dimensions – Creditworthiness (Founder and company's track record) and User experience (ease of use). Moreover, Lin, & Fu (2012) examined ecommerce critical success factors in ecommerce travel segment with the goal to puzzle out the priorities and to determine which factors have the biggest impact of ecommerce acceptance and to which criteria businesses should shift their attention to in order to have significant growth. The goal of the study was to assigned weights to factors which were related to technical, product or service context. The study analyzed and ranked in total of thirty-one concrete criteria's (Table 4). In the previously defined added value dimension concept, it can be stated that around 82% of the weights can be considered as added value factors (excluded criteria's pricing, product mix, product variety, strategic alliance)

Table 4 Ecommerce acceptance criteria's and their weights (Lin, & Fu, 2012)

Ranking	Subcriteria	Weights
1	Product content	17.57%
2	Privacy policy	10.81%
3	Purchase procedure	9.79%
4	Pricing	9.28%
5	Promotion plan	5.26%
6	Payment model	5.17%
7	Product mix	4.74%
8	Product search and order tracking	4.02%
9	Assurance	3.78%
10	Identity verification	3.61%
11	Product variety	3.00%
12	Return and refund policy	2.98%
13	Real-time transaction information	2.12%
14	Brand awareness	2.05%
15	New product development	2.00%
16	Encrypted data transmission	1.87%
17	Reliability	1.84%
18	Mobile commerce	1.69%
19	Web design	1.54%
20	Responsiveness	1.05%
21	Strategic alliance	0.91%
22	Travel e-news	0.77%
23	Customization	0.76%
24	Dynamic of sales content	0.74%
25	Online FAQ and inquiry service	0.65%
26	Empathy	0.50%
27	Blogs and community management	0.42%
28	Information updated	0.39%
29	Follow-up service	0.33%
30	Value-added service	0.21%
31	Tangible	0.13%

In analyzing the assigned weights, it can be seen that top twelve ranked factors make up about eighty percent of the total pool and some of them have direct correlations. For example, purchase procedure with product search and order tracking reflects on user experience. By summarizing the rankings through added value dimensions, it can be seen that the most impactful dimensions can be considered user experience. With criteria's like product content, purchase procedure, promotional plans, product search and tracking and others, user experience as a dimension aggregates around 45% of the total weight. Privacy is second with around 15% of the total weight. Security can be identified as the third most important factor with data encryption, identity verification and other safety related criteria's makes up a total weight of around 9%. reliability – fourth would preliminary accumulated value of 8%. Lastly, customer relationships with around 5% of acceptance weight.

Kaushik, Khare, Boardman & Cano (2020) has recently analyzed this topic once more in fashion related ecommerce. Reasonableness of the study was defined by the fact that users' needs and value propositions are consistently changing. For that reason, it's crucial to iteratively revisit this topic and attempt to renew the shifting user tendencies and needs. The two most important found factors were not related to added value dimensions - online shop recognition and price. However, the third factor was tied with reliability dimension because it evaluated the reputation of the online business. Moreover, it wasn't just a single case of reliability noticeability, the whole webstore image category was defined as the most important category which included factors such ratings and reviews, reputation and thus it should be considered as the most impactful category. User experience was evaluated from convenience, motivation and aesthetics standpoint and from the relative ranking can be viewed as the second in importance dimension. Security, privacy and customer relationships got a relatively low importance level. All dimensions were not evaluated as separate categories but rather then factors in more broader categories. Judging by the authors ranking system security and privacy would be equal at the third and fourth place. Customer relationship would be fifth.

Furthermore, in trying to refine a business strategy which would be focused on added value and business growth, it is fundamentally important to evaluate the specific product type which is being sold. The type itself is really important because the impact of certain added value factors can be highly beneficial in some cases and non-beneficial in others. For products with low costs and high frequencies (LC/HF) customers tend to depend more on their own expertise and don't really need additional guidance. For these kinds of customers convenience, usability and fluidity are the most important factors. However, for products with high costs and low frequencies (HC/LF) customers tend to look for more consultations and advice, which means that business resources should be allocated in helping functions and providing credible, reliable information (Barrutia, Paredes & Echebarria 2016).

In concluding the analysis on added value dimension priorities, it can be stated that different for product types (LC/HF and HC/LF) different dimensions weights should be present. Due to the nature of the research study it is relevant to define LC/HF type. According to the previously analyzed scientific literature the priorities are presented in tiers for LC/HF product type:

- Tier 1 User experience
- Tier 2 Reliability
- Tier 3 Security and Privacy
- Tier 4 Customer relationships

The following tier list sets added value dimension priorities in comparison to other dimensions. Which means that one dimensions can be evaluated as more impactful than the other one in the given LC/HF field. Due to the limited scope of the study the dimensions are not given concrete weights, but the tiers will be taken into account in the empirical research.

2.4. Added value. Links and relationships between dimensions

Through the literature review multiple connections between different added value dimensions were noticed. Before concluding the added value structure, it seems necessary to review the possible links, relationships or overlaps between different dimensions. Insignificant, small or market-specific overlaps will not be evaluated due to the limited scope of the study.

Seckler, Heinz, Forde, Tuch, & Opwis (2015) state that user experience has direct implications on trust building. It is implied that focusing on website graphics and content design can help to avoid mistrust and accelerate business growth via recurring customers. Privacy is considered also a really important topic, in which certain guidelines are recommended: not sharing users' data to third parties, public information should not be secondary source. These kinds of tips are rational but even a small mistake can have a negative and long-lasting implications, because the initially perceived image can be hard to change. Additionally, direct link was found also with usability and security which can speed up the trust building process exponentially.

Panya & Ramingwong (2014) proposes an argument that in order to achieve initial trust between the buyer and the seller, one must evaluate the situation from the consumer viewpoint. That means that in the initial contact phase the online buyer must have a fluid purchase process in order to stimulate feeling of familiarity, efficiency, quality. The goal is that user experience should play a major role in building companies' reputation, integrity which would encourage recurring visits/purchases. Additionally, the author mentions that user experience can be used after the initial contact phase and be a powerful tool in trust development, relationship commitment.

Ma, Li, & Zhou (2014) touches on the links between user experience and reliability. Consumers tend to recognize a service or product as reliable only if the user experience was efficient and meet their subconscious expectations. Soon & Abawajy (2012) adds that user experience could potentially destroy the sense of reliability in multiple stages: by not accessing the site, lacking clarity in product information, privacy policies, not providing sincere and truthful reviews and ratings, lacking efficiency in purchasing process. Taking in account the previously mentioned information it can be stated that reliability is partly an outcome which rises from user experience.

As in the perceived security definition table (Table 1) it can be seen that security has a direct connection with customer perceived confidentiality. Zhao-Fu, Hao, & Ning (2010) addresses this topic confirming that customer perceived security is directly linked with not only confidentiality but even more with privacy. As in the past years' privacy role has only increased companies have a crucial commitment to assure the users that their personal data will be secured under a layer of suitable protection. This data might be direct or indirect. For example, when a user willingly inputs his or her information (could be a registration form, a forum or a subscription) it is called direct personal data. Indirect data is when a user is assigned with tracking file (called "cookie"), which tracks and records movement, spent time, actions on the site, clicks. For that reason, transparency about data collection and how it is secured is mandatory in this day and age.

Panya & Ramingwong (2014) in discussing initial trust building the authors provide significant emphasis on user perceived security. In the initial buying stages (initial trust formulation) the security is involved in providing suitable services with honesty and ethics. In practicality that is linked with securing the purchasing process and exact actions like: monetary transactions, personal data theft and/or altering user provided information. However, security role increases by moving through the trust building pipeline. Once the initial trust is achieved, customers tend to look for security correlations with efficiency and fulfillment (Table 3). That means that security is one of the parts, which needs to ensure an efficient and fluent recurring purchasing process. By providing unaltering (inaccessible to unauthorized third parties) experience and such experience would lead to trust and relationship evolvement.

Liefa & Wang (2010) analyses reliability importance and connection with trust from a practical standpoint. Authors define that basic reliability, especially in the initial contact stages is extremely important. Such importance is being discussed through the website quality standpoint, by providing an error free and consistent experience. Panya & Ramingwong (2014) adds to this topic through the trust building perspective and provides insights that customer tend to look for stability, availability and capability feedback before making the subconscious decision to increase their trust with a particular provider.

2.5. The overview of theoretical research. Added value structure formulation.

In the first stages of the theoretical research it was defined that the most typical source for added value creation is process refinement (Čiarnienė, Vienažindienė & Vojtovich, 2017). By measuring various processes, spotting the patterns and adjusting companies can achieve a competitive advantage which can potentially lead to business growth. In evaluating what categories define added-value definition it was identified that no global agreement in literature is present. Many different authors (Tsao, Hsieh, & Lin, 2016; Gothelf, 2017; Zheng, Yu, & Jin, 2017; Jiang, Jun & Serv Bus, 2016) touches on added value from a specific, narrow standpoint. By using their insights added value was described through five main added value dimensions (Figure 5). Later on, these dimensions, one by one, were analyzed in literature in order to define their structure, correlations and impact level. For each dimension, a hierarchical scheme and/or table was formulated with their respected sub-categories and indicators. User experience was defined through practical acceptability which included the design, learnability, use effectiveness, memorability, costs, compatibility and how subjectively pleasing it is. Reliability included offering (quality, feedback, price, product and or service), authenticity (information validity, normalization, completeness) and ability (reputation, credit, legal records). Security was defined through non-repudiation, availability, integrity and confidentiality. Privacy included physical design (the visibility of data handling procedure related information in the website), accountable business practices (data collection justification). Customer relationship creation through trust was argumented and explained. Process flow was defined: initial trust formulates from sub-categories like the ability to perform a service, honesty/ethics and a natural desire to help. Which eventually through efficiency, customer service, communication and fulfillment leads to trust building. After defining the added value dimensions, their correlations and overlaps were analyzed. The most significant and visible correlations were that reliability/security/user experience leads to trust and therefore highly impacts customer relationship, that security is influenced by privacy and that user experience leads to reliability. Additionally, theoretical literature was analyzed in order to identify the priority/importance level of added value dimensions compared to each other. It was found that in the analyzed sector (when products are low cost and are sold high frequencies) customer tend to prioritize these dimensions in a manner of such: user experience, reliability, security and privacy, customer relationship.

All of the previously mentioned information was used to create added value structure scheme which is being represented in Figure 13.

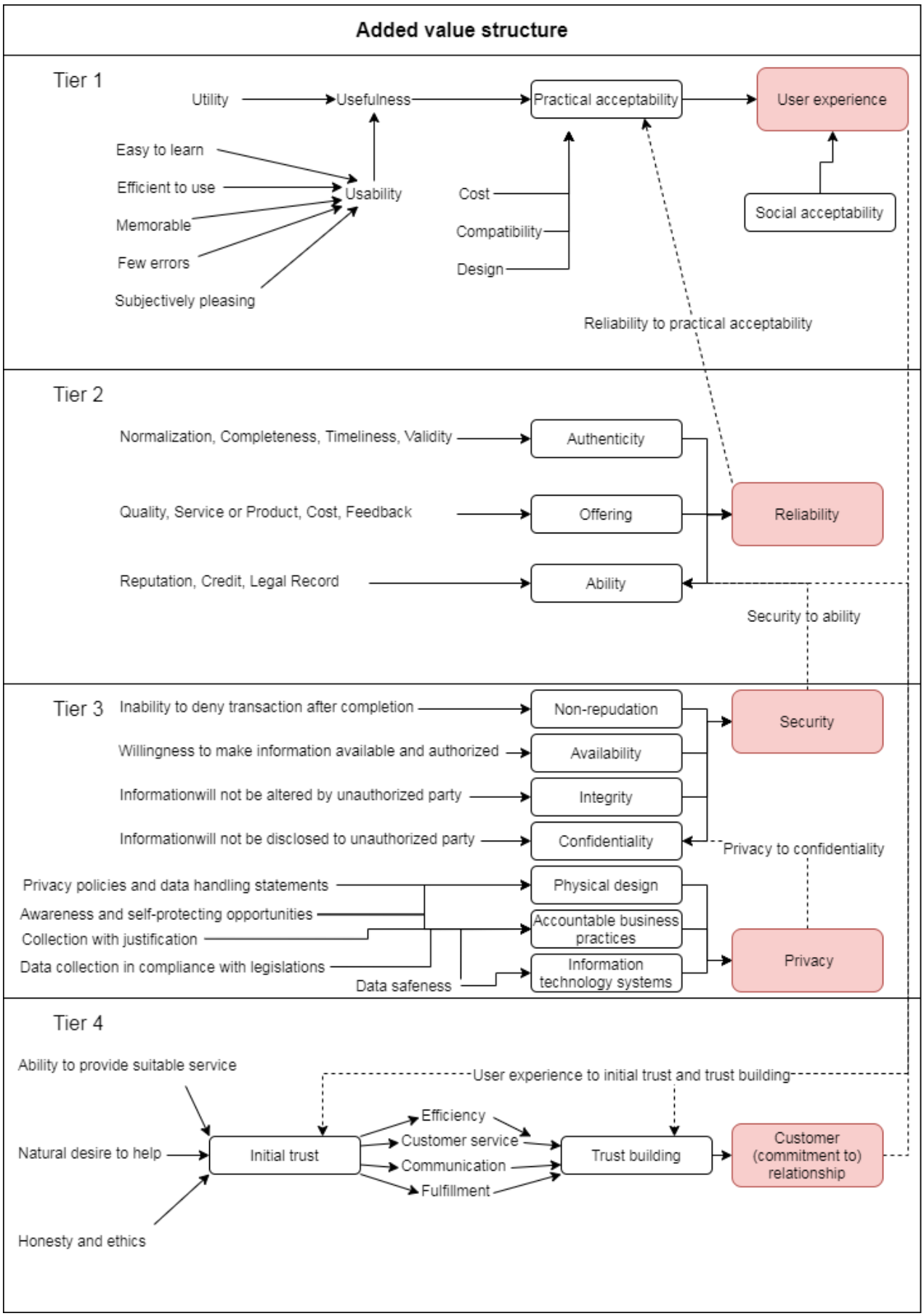


Fig. 13. Added-value dimension diagram for LC/HF product type (compiled by the author)

3. Added-value research methodology

Objective of the research – to investigate ecommerce in the local versus global scenario, with the assumption that this context is best reflected with the largest and the most visited business by Lithuanian customers. The evaluation and comparison will be carried out according to the theory findings, which provided insights about what measurements should be carried out and defined added-value structure. The companies were chosen by the majority of the Lithuanian online buyers' attendance: The biggest local provider which is Pigu.lt and the most visited global provider - Aliexpress.com. Empirical research will analyze how Pigu.lt and Aliexpress.com differentiates in regards of their value-added structure.

The research is divided in two parts: 1) a survey on user perceived online buying experience in the scope of value-added dimension 2) and an evaluation of technical measurements which correlates and links to the value-added structure. The first part of the research will provide insights on added-value through customer perceived values and the second part will take into account technical parameters which will provide a technical background for the survey data and take into account factors that might be felt subconsciously by the end user.

Both parts of the empirical study will go through several stages: formulation, testing, adjustments until it reaches the final (public) stage. After the adjustment stage the final list of measurable indicators will be defined and mentioned in the 3.2 section. The preliminary research plan with the approximate timeline can be seen in in Figure 14.

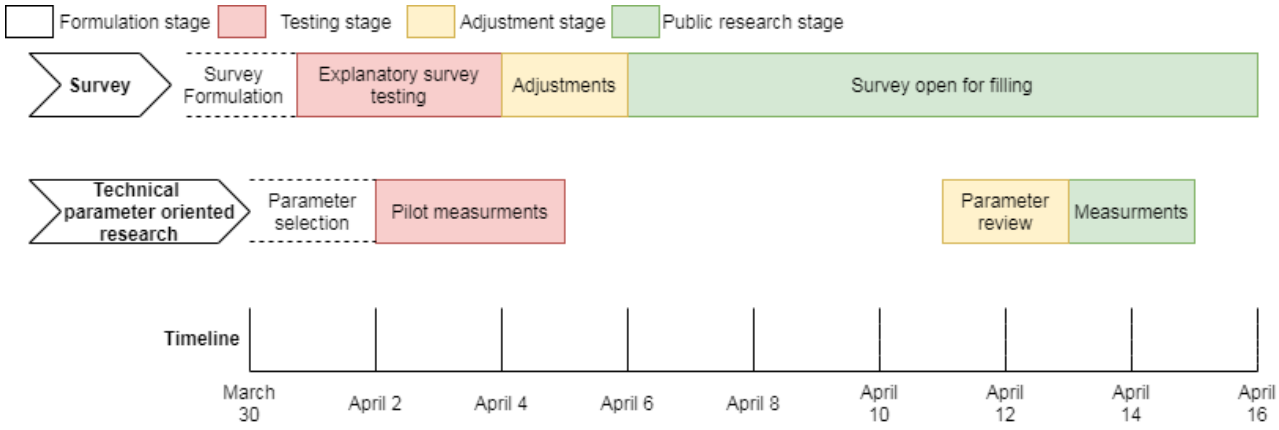


Fig. 14. Preliminary research timeline (compiled by the author)

Empirical research method for the 1st part of the research. A quantitative survey research method was selected in order to identify how Lithuanian online shoppers perceive and evaluate Pigu.lt and Aliexpress.com shopping experience. The key is to find out how the chosen companies differentiate in value-added dimensions from the customer standpoint. This method was chosen due to several main advantages: seeking a significant number of respondents (at least 70), providing the ability to evaluate statistical significance and providing the opportunity to complete the survey remotely due to the current global tendencies of social distancing. 7 – point Likert scale will be used for more favorable calculations and conclusions. The following information, patterns and useful data will be used in finding opportunities and formulating guidelines for this particular case and for global versus local context.

Sampling method. Voluntary response sampling was selected in order to ensure responses from those respondents who meet the needed criteria of having buying experience in both providers.

Method of statistical analysis. Obtained survey data will be analyzed through SPSS (Statistical Package of Social Sciences) software. In evaluating and describing the answers, the descriptive frequency analysis will be used. In evaluating the customer perceived differences between the two subjects two possible methods were looked into – paired sample t-test and nonparametric 2 related sample test (Wilcoxon). As paired sample t-test is a parametric procedure it has several assumptions. For this research it is needed to look into two of these assumptions: the dependent variable must be continuous (interval/ratio) and that the dependent variable should be normally distributed. The first assumption can be cleared easily because Likert scale is considered to be ordinal but can be interpreted as interval. However, for the normal distribution assumption there is no concrete global answer. Lumley, Diehr, Emerson & Chen (2002) analyzed such problem in health section and through "The Central Limit Theorem" came to the conclusion that if the sample size is sufficiently large this assumption can be not taken into account. The authors failed to answer how big exactly the sample size should be, to be considered as sufficiently large. Nonetheless, most of their research suggested that the number varies between 30 and 50. Taken into account the previously mentioned arguments, it is safe to assume that Wilcoxon method can be considered as more methodologically correct. For that reason, the main study analysis will be done through this method. Wilcoxon method will provide insights about the comparison of mean values, std. deviation, minimum and maximum values. Statistical significance will be evaluated through Asymp. Sig. 2 tailed value (lesser than 0,05 shows statistical significance). Importance level will be analyzed by taking into account the total accumulated value for each dimension. This information will be used to evaluate if added value tiers, which were defined in theoretical research, section 2 can be considered rational and sustainable.

One-way ANOVA method will be used to underline the importance structure by age group. However, do to the fact that certain ANOVA assumptions cannot be met (normal distribution, variances of population to be equal) Kruskal–Wallis one-way analysis method will be used to make analysis and conclude the findings. Additionally, one-way ANOVA method will be used in analyzing the importance structure by the respondent's preference to buy locally and globally.

Empirical research method for the 2nd part of the research. For technical-oriented parameter evaluation it was chosen to use quantitative secondary data analysis. This part, through third-party data will help link or correlate value-added dimensions from the customer standpoint with practical and easily measurable data which would provide guidelines for local ecommerce businesses in more practical and implemental way.

Method of analysis. Technical-oriented parameters measured by third-party software will evaluate three measurable dimensions – User Experience, Reliability and Security. The data will be compered between two subjects. Such comparison will provide additional information, provide approval or rejection of the possible opportunities that were spotted in the first research part.

Tasks of the research:

1. By using the data from the survey to compare importance level to the theory.
2. By using the survey to identify what differences are present in Pigu.lt and Aliexpress.com added-value structure.

3. To link customer perceived differences with technical parameters and/or spot new patterns which would result in additional insights.
4. Provide practical guidelines which could be used in competing against global rivals.

3.1. Survey

Survey will consist of questions/statements, which will be formulated from previously defined value-added structure and will evaluate subjective customer experience. Given the limited scope of this research the question quantity was formulated according to previously defined tiers (importance level). That means that higher tier dimensions (for example User Experience) will be analyzed more deeply due to higher impact range. Objective criteria's as such: error count, compatibility, cost, shipping timeliness, credit, legal record will not be evaluated in the survey. Some of the objective factors will be taken into account in the second part of the research and others defined in the research limitations section.

The survey will ask respondents to rate the same experience with both providers (Pigu.lt and Aliexpress.com). That means respondents must have purchasing experience with both providers. It is assumed that this kind of comparison will sharpen the interviewees differentiation between the providers and extract more comparable answers. The experience will be evaluated in seven-point Likert scale. The answers vary from a strong disagreement with a statement to strong agreement regarding the experience the user had and/or the subjective feelings he or she felt. In the last stage of the survey the subjects will be asked to assign a percentage to each dimension which represents their perceived importance level.

In the initial survey formulation stage 21 measurable items were defined which were created an/or extracted from the literature to measure the defined added value dimensions. Additionally, 5 general questions were formulated about the subjects in order to ensure representativeness of the sample and determine how much the subjects are involved in online purchasing.

- User experience dimension was set to be measured by the following items: efficiency, performance, productivity, effectiveness, helpfulness (Chin, 2008), ease of making the first purchase (Chin, 2008) and the attractiveness of the design defined by the author.
- Reliability dimension was set to be measured by the following items: capabilities to perform their duties (Colquitt & Rodell, 2011), information finding, fullness and validity (defined by the author), quality (Boyer & Pagell, 2000) and self-awareness (Walumbwa, 2008).
- Security dimension was set to be measured by the following items: transaction safeness (defined by the author), data availability (defined by the author), personal data safeness (defined by the author) and consistency (Colquitt & Rodell, 2011).
- Privacy dimension was set to be measured by the following items: privacy visibility (defined by the author) and data collection reasonableness (defined by the author).
- Customer relationship dimension was set to be measured by the following items: perceived expertise level (Bhattacherjee, 2002) and overall trustworthiness (Bhattacherjee, 2002).

After the initial survey formulation stage, the previously defined items with their respected statements were tested with five different subjects in an explanatory test. The findings showed that certain items were quite problematic for all to subjects. The biggest emphasis was given to the User Experience dimension, items like efficiency, effectiveness, productivity, performance overlapped in most of the cases. A decision was made to re-adjust these items by defining more concrete and separable items. Efficiency item was eliminated as it overlapped with effectiveness. Although, effectiveness is also considered to be broad and overlapping the testing results showed that subjects evaluate one broad (overall) statement positively, because they can take into account more factors. Performance and productivity were changed to speed and fluidity. Helpfulness eliminated; convenience implemented. Additionally, more than half of the survey statements were adjusted, concretized, explanatory pages created, reminders and summaries have been added. The final list of dimensions assigned items, statements, definitions can be seen in Table 5.

Table 5 Survey statements and comments (compiled by the author)

From theory		**Measurable information used in survey**		
Dimension	**Value added categories**	**Measurable Items in the survey**	**Survey statements**	**Data interpretation and/or definition**
User experience (Tier 1)	Usefulness	Speed	Pigu.lt/Aliexpress.com provides the ability to perform online purchases quickly	The objective is to how Pigu.lt and Aliexpress.com compares in the contrast buying speed
		Fluidity	Pigu.lt/Aliexpress.com purchasing process is fluent	The objective is to define how consumer perceived fluidity compares between Pigu.lt and Aliexpress.com
		Overall Effectiveness	Pigu.lt/Aliexpress.com is an effective tool to buy products online	The objective is to define and compare perceived effectiveness in a sense of time saving of the purchasing process
		Convenience	Pigu.lt/Aliexpress.com is a convenient website when I want to find or purchase a product	The objective is to define and compare perceived convenience for subjects in comparison
		First – use learnability	It was really easy to make the first (initial) purchase on Pigu.lt/Aliexpress.com	The objective is to define and compare the initial purchasing experience which will identify how easy to use the system is.
	Design	Graphical design perception	Pigu.lt/Aliexpress.com websites seem well designed	The objective is to subjectively define and compare the graphical aspects and acceptance
Reliability (Tier 2)	Ability	Customer perceived capability to perform	Pigu.lt/Aliexpress.com performs their duties in the most professional way	The objective is to define customer perceived capability in the scope of the two selected retailers
	Authenticity	Information finding	It is easy to find all the needed product related information on Pigu.lt/Aliexpress.com	The objective of the question is to define the easiness to find the needed information

		Information completeness	Pigu.lt/Aliexpress.com provides enough information about their products	The objective of the question is to define product information fulness.
		Information validity	Product related information is valid on Pigu.lt/Aliexpress.com	The objective is to define the perceived validity of publicized information by the selected subjects
	Offering	Website quality	Pigu.lt/Aliexpress.com website quality is high	The objective is to define what sense of quality the customer felt by interacting with the selected subjects.
		Self-awareness about feedback	Pigu.lt/Aliexpress.com encourages customer to leave feedback about their experience	The objective is to define how Pigu.lt and Aliexpress.com seeks feedback
Security (Tier 3)	Non-repudiation	Transaction safeness	Making a monetary transaction on Pigu.lt/Aliexpress.com is safe	The objective is to define on how safe customers feel by initiating a payment transaction with the selected subjects.
	Availability	Data availability	The information about my usage collected by Pigu.lt/Aliexpress.com is available to me	The objective is to define how assure customer feel that the data regarding their purchase will be available in a case of need
	Integrity	Consistency	Purchasing process at Pigu.lt/Aliexpress.com is consistent	The objective is to define how consistent the subjects in question are.
	Confidentiality	Personal data safeness	My personal information is safe on Pigu.lt/Aliexpress.com	The objective is to define how much do the customers trust the selected subjects to now share their personal information
Privacy (Tier 3)	Privacy physical presence	Privacy visibility	Privacy related information was visible on Pigu.lt/Aliexpress.com	The objective is to define and measure how noticeable the information seems on the selected subjects
	Accountable business practice	Reasonableness	All personal information that Pigu.lt/Aliexpress.com collects is necessary and reasonable	The objective is to define if the consumer feel that the data collection is ethical and accountable.
Customer relationship (Tier 4)	Trust	Expertise level	Pigu.lt/Aliexpress.com have a high expertise level	The objective is to define the customer perceived expertise level of the tested subjects
		Overall trustworthiness	Overall trustworthiness of Pigu.lt/Aliexpress.com is high	The objective is to define the trust level on Pigu.lt/Aliexpress.com
Dimension ranking based on the importance level. Respondents will be informed in the beginning of the survey, that in the final question they will be asked to rank the analyzed dimensions according to the importance level. There will be a separate introduction page about the added value structure. Each of the dimension will have a separate filling page. In the end of the survey the respondents will be given a summary about the measured dimensions and their respected indicators. They will be asked to distribute 100% to the analyzed five dimensions based on the importance level.				

The survey was initially created in English and translated in Lithuania. Survey was set to be carried out through "Apklausk.lt" platform from April 6th till April 16th, 2020. Survey sharing strategy was through various online groups (shopping related Facebook groups, Survey groups), forums and advertisements. The objective of the quantity of answered surveys was set to be – 70, as it is enough to demonstrate the representativeness of the sample. Along with survey in all the distribution channels additional condition was mentioned - that the survey must be completed by a person who has buying experience in both (Pigu.lt and Aliexpress.com) providers.

3.2. Technical parameter-oriented research

Technical case study evaluation will consist of 34 measured factors which will be objectively linked with both, added value dimensions and certain survey statements. This technical parameter-oriented research was defined as needed in order:

1. To achieve more practical guidelines and provide findings in both, broad dimensional aspects and concrete numerical parameters.
2. To provide additional insights to certain dimensions and categories.
3. To re-use certain data which was collected by reliable and technical savvy third parties as there is no basis to re-collect this data or interpret it in a different way. That allows survey to be more specific and evaluate additional factors.
4. To objectively evaluate measurable dimensions and categories without human interaction and provide more reliable findings from two different fields – survey and technical oriented research.

To my best knowledge, up to date similar academic studies regarding technical-oriented parameters did not have an attachment to a clearly defined added value structure. For that reason, in this section of the study, assumptions regarding technical parameter association with value elements are being made. These assumptions will be made in in accordance to the previously analyzed literature, which focused on added value creation through technical parameters (Sloss, Nukala & Rau , 2019 ; Whittle & Confreaks , 2015 ; Yanusha, Kartheeswaran & Lojenaa , 2018 ; Fenton, Gallagher, Heinze, Fletcher & Griffiths , 2020). The above-mentioned research influences the choice of measurement tools.

In measuring these factors, the following third-party software will be used: "Google PageSpeed Insights", "Google Business", "SortSite", "CryptCheck"). A simplified and finite list of technical measurements can be seen in Table 6. The technical parameters definitions were taken from the third parties themselves or defined by the author (in cases in which the technical parameters were measured by the author). The definition list is provided after the table.

The User Experience measurements will be conducted separately for both "Desktop" and "Mobile" versions and for both "Homepage" section and "SERP" (Search engine result page) sections. "Google PageSpeed Insights" measurements will have pre-defined levels of "slow", "moderate" and "fast" indicators. If the two subjects will have the same parameter in different levels, then the gap will be considered significant. These levels cannot be defined before-hand, because the third-party itself does not publicly disclose the ranges, but rather assigns the levels after the test is finalized.

Table 6 Technical measurements and sources (compiled by the author)

From theory		**Measurements**	
Dimension	**Value added category**	**Parameters**	**Source**
User experience (Tier 1)	Usefulness	Speed Index	Google Page Insights
		First Contentful Paint	Google Page Insights
		First Meaningful Paint	Google Page Insights
		Time to Interactive	Google Page Insights
		Server response time	Google Page Insights
		Click count to the purchase (Recurring / With Log In)	Measured by the author
		Time to the initial purchase (With Registration)	Measured by the author
		Time to the recurring purchase (With Log In)	Measured by the author
Reliability (Tier 2)	Ability	Reputation score	Google business
		Comment count	Google business
	Quality	Errors percentage	Sort Site
		Accessibility percentage	Sort Site
		Combability percentage	Sort Site
		Search engine issue percentage	Sort Site
		Standard issue percentage	Sort Site
		Usability issue percentage	Sort Site
	Offering	Top product review count	Measured by the author
Security (Tier 3)	Non-repudiation	Key Exchange	CryptCheck
	Confidentiality	Protocol	CryptCheck
		Chiper	CryptCheck

The following definitions will be used for parameters that were measured that were mentioned in Table 6:

- "Speed Index" is a metric that shows how quickly the website content loads.
- "First Contentful Paint" is a metric that show how quickly the website shows the first bit of content.
- "First Meaningful Paint" is a metric that identifies when the primary content is being show to the end-user.

- "Time to Interactive" is a metric that shows how long it takes for a website to become interactive.
- "Server response time" is a metric that shows how much time passes till the server responds and the website rendering starts.
- "Reputation score" is a metric that shows how Lithuanian visitors rate their experience
- "Comment count" is a metric that show how many comments and feedbacks were filled out regarding the two subjects.
- "Top product review count" is a metric that shows the total review count for a top product. The top product should exist in both sites.
- "Errors percentage" is a metric that shows the percentage of pages that have issues related to broken links and inconsistencies with server configuration. The first 10 accessible pages are being considered.
- "Accessibility percentage" is a metric that shows the percentage of pages that have issues related accessibility for older users, people with disabilities and or special needs. The first 10 accessible pages are being considered.
- "Combability percentage" is a metric that shows the percentage of pages that have browser specific issues. The first 10 accessible pages are being considered.
- "Search engine issue percentage" is a metric that shows the percentage of pages that show search engine guidelines violations or that pages do not follow the search optimization best practices. The first 10 accessible pages are being considered.
- Standard issue percentage" is a metric that shows the percentage of pages that do not follow World Wide Web Consortium standards. The first 10 accessible pages are being considered.
- "Usability issue percentage" is a metric that shows the percentage of pages that has navigation issues. The first 10 accessible pages are being considered.
- "Protocol" is a metric that evaluates the method of information security.
- "Key Exchange" is a metric that evaluates the method security of cryptography while the two parties are in exchange.
- "Chiper" is a metric that evaluates the method of data encryption and decryption.
- "Click count to the purchase (Recurring / With Log In)"is a metric that measures the quantity of clicks from the homepage to the end of the purchase.
- "Time to the initial purchase (With Registration)" is a metric which is measures the time period from the homepage to the end purchase including the registration.
- "Time to the recurring purchase (With Log In)", which stands for the time period from the homepage to the end purchase including the login.

All the data collection was conducted on 2020, April 13th. The research was initiated in Lithuania. This information should be underlined due to technical limitations which were explained in the "Research limitations" section.

3.3. Research limitations

Certain limitations can be found in most of the studies and this research is not an exception. The main research limitations were formulated:

1. The main thesis is focused on the broad problematic about global versus local ecommerce providers and findings ways to help local providers in creating competitive advantages form added value dimensions. However, the research focused only on the two most frequently used providers – Pigu.lt and Aliexpress.com. This decision, was made in order to control the research

scope and find, examine, provide more concrete results in how a particular case should be viewed and solved. That means, that although these results cannot be assigned to all of the global versus local cases they can be used as useful insights in understanding the broad differences and re-using certain information, guidelines and/or findings in other cases.

2. Due to the limited internal knowledge about the subjects (Pigu.lt and Aliexpress.com) abilities, certain criterions are not being examined. Factors such as price, shipping speed, product count, guarantee rules are extremely important, but without internal, confidential knowledge it is assumed that both parties cannot easily adjust such factors and they are considered as a static, pre-defined offering.
3. Due to the limited scope of the study, it is not possible to evaluate all the added-value dimensions and factors that customers or users consider. For that reason, this study evaluates and examines areas which are most commonly noticeable in literature and to the end-customer.
4. Due to the limited scope of the study, it is not possible to evaluate all the added-value technical parameters. For that reason, this study evaluates and examines parameters which are linked with theory related dimensions and/or measured commonly by search engines.
5. Due to the lack of technical capabilities and to the limited scope of the study, certain technical measurements initiated by third-party software cannot be checked or validated additionally. For that reason, they cannot be defined as a single source of truth.
6. Due to the nature of certain technical measurements, they can highly vary in time. For example, providers (Pigu.lt and Aliexpress.com) can initiate maintenance, have higher site usage then normally which could have a significant impact on the findings. Technical parameters were measured multiple times in the same day in order to minimize the previously mentioned inaccuracies, but a small probability of results variations still exist.
7. Due to the limited capabilities of the third parties, certain parameters will be measured by the author. They should be considered as a helpful addition to the research and cannot be applicable to all cases.

4. Practical comparison of Pigu.lt and Aliexpress.com value-added structure in order to reveal the refinement possibilities

In this section research findings from both research parts will be provided. The information will be interpreted and analyzed. The analysis will be performed in accordance with the definitions provided in the methodological part and the previously mentioned guidelines for the interpretation of information.

4.1. Representativeness of the survey sample

In the ten-day active period (from 2020-04-06 till 2020-04-16) 81 respondents provided full answers to the released survey. The average survey duration was around 9 minutes and 41 seconds. 74 respondents have chosen to fill out the survey in Lithuanian language and only 7 have chosen English version. From this point forward, the results will be mentioned and analyzed an aggregated value (from both language versions). The first five questions were centered around identifying the respondents by their age, gender, buying tendencies and habits. These first five questions were mandatory but taking in account hey might be considered as private an additional notice was added to the survey which stated that this information will not be disclosed to any third-party.

The survey age data shows a linear trend of lower activity for and older age. The most active respondents were identified from 16-24 and 25-34 ages groups, combined 76 percent of all survey completions were in these two age groups. The third most impactful age group was 35-44 (9.9%). Respectively 45-54 (8.6%) and 55-64 (4.9%) shows even lower activity rates. No completions of the survey were recorded in the 65-74 age group. The visual representation can be seed in Figure 15.

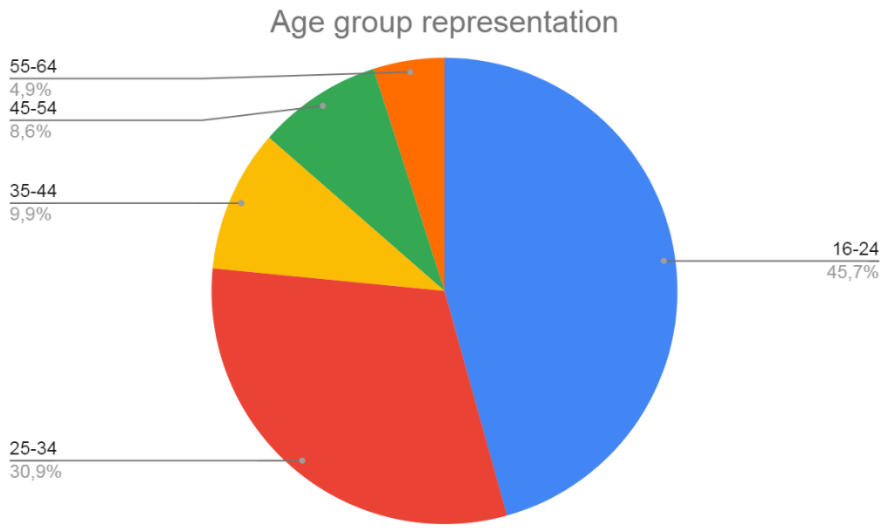


Fig. 15. Age group representation (compiled by the author)

According to Lithuania Department of Statistics (2019) the most active age groups which purchase products or services online is 25-34 (79% of this age group purchase products online). Other age groups rank in the following way: 16-24 (68,1%), 35-44 (64,6%), 45-54 (41,9%), 55-64 (25,7%) and 65-74 (10,1%). In order to sort out and rank this age groups it is essential to discover the approximate population by age. Lithuania Department of Statistics (Residents of Lithuania. Population and composition, 2019) has released detailed information about the current population its age, growth and

gender. From the report it can be defined that the most online customer are from the age group of 25-34 (around 370,000 residents and 79% provides about 292,000 online shopping customer). 34-45 age group has the second highest online shopping customer count – 222,000. 16-24 age group has around 293,00 residents and 68.1% activity rate which results in around 199,000 online shopping customers. 65-74 age from which no respondents were found accumulate only around 2,6% of the total count of online shoppers, for that reason this age group absence can be considered as minor and insignificant. Although, the most active age group in the research was not exactly the same as the overall quantity of online customers, it can be assured that the majority of the respondents comes from the most active groups and in total 85% of the survey respondents (age groups: 16-24, 25-34 and 35-44) accumulate of around 71% of all Lithuanian online shoppers.

According to the disclosed data significant more active in the survey were women (72,8 % versus 27,2%). From 81 respondents, 80 stated that they made an online purchase in the past year, that is in alignment with Lithuania Department of Statistics. The more detailed frequency did not provide significant margins. The most active shoppers tend to buy once a week (12,3%), leaving the majority to buy less frequent: once a month (40,7%) and less than once a month (46,9%).

In trying to evaluate if the respondent information is bias, it necessary to take a look into the tendencies to buy from local or global providers. Only a minor (5 more respondents) preference to local providers was seen. Taking in account, the objective is to evaluate local business growth opportunities, this slightly bigger preference is considered as an advantage (Figure 16).

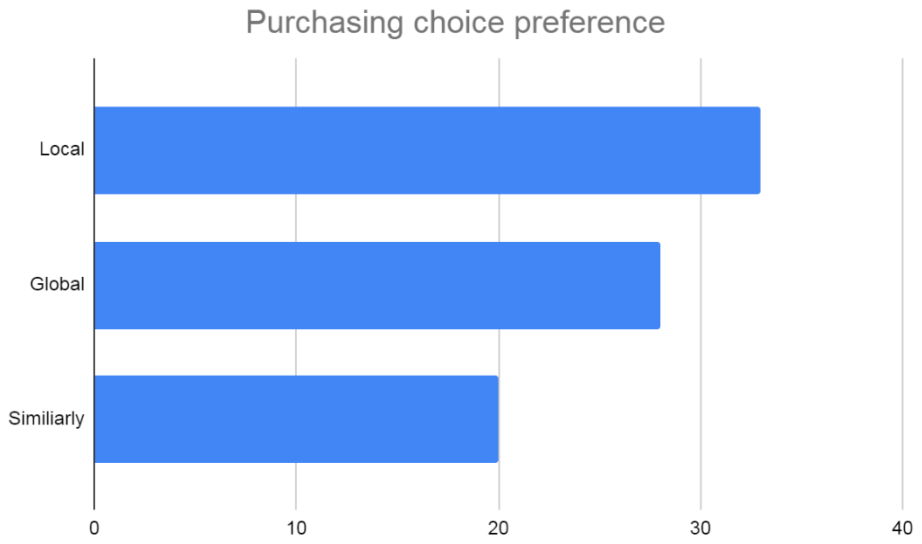


Fig. 16. Purchasing source preference (compiled by the author)

4.2. Importance level. Anova and Kruskal-Wallis analysis.

In the section 2 of the theoretical research (“Prioritizing added value dimensions”) an assumption was made the certain dimension have higher impact that others in the context of Pigu.lt and Aliexpress.com. A mandatory question was given in the end of the survey to check if the premise according to the scientific literature is correct.

Respondents were asked to distribute 100 % to main five added value dimensions – User Experience, Reliability, Security, Privacy, Customer relationship according to their perceived importance level.

In examining the accumulated values User experience collected 1998 score, Reliability – 1700, Security – 1802, Privacy – 1420 and Customer Relationship – 1180. The distribution in percentage values can be seen in Figure 17. Considered tier 1 dimension - User experience, accumulated almost a quarter of the total score and has 24,7% (highest) percentage. Tier 2 dimension – Reliability, was not far off with 21,0 % (the third highest) percentage. Tier 3 dimensions – Privacy and Security, were evaluated quite differently: Security was considered the second most important dimension (22,2%), which was unexpected. Although Privacy was given predictable score according to the previously set tiers (17,5%, the fourth highest). Customer relationship accumulated the lowest value (14,6%).

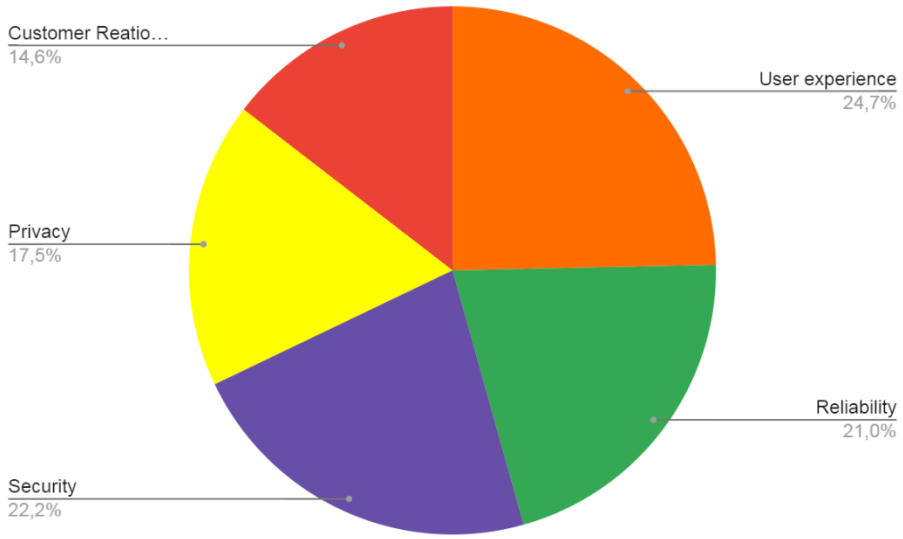


Fig. 17. Importance level distribution from all respondents (compiled by the author)

Figure 17 represents the total accumulated value which has enough information to compare practical data with theoretical. However, the study poses an additional opportunity to better understand on how added-value dimension importance level is distributed through various age groups. For this purpose, ANOVA analysis method was used.

User experience evaluation ranges from 23,32 to 33,75. A tendency can be spotted that the mean value increases for older respondents and reaches the highest point in the 35-44 age group (33,75). Older groups have relatively high mean value compared to the younger ones. Reliability evaluation is less linear, 35-44 has the highest mean value of 26,25. However, 25-34 and 55-64 age groups accumulate low mean scores of 18,40 and 17,50. No tangible tendencies can be spotted in this section. Security dimension importance level seems to be quite evenly distributed compared to the other dimensions. Between all age groups it varies from 21,00 (25-34 age group) to 25,00 (55-64 age group). Privacy dimension has one anomaly with substantial low value. 25-34 age group has a mean value of 8,75, which compared to other values (ranging from 16,43 to 20,00) strongly stands out. Customer Relationship dimension sees similar tendencies, 25-34 age group has a low mean value of 7,50, while other age groups range from 12,50-17,40.

Looking into each age group importance structure the following data occurred:

- 16-24 age group has identical importance ranking as the whole respondents - 1. User Experience (23,32%) 2. Security (22,49%) 3. Reliability (21,62%) 4. Privacy (17,97%) 5. Customer Relationship (14,59%).

- 25-34 age group has minor differences – 1. User experience (23,60%) 2. Security (21,00%) 3. Privacy (19,60%) 4. Reliability (18,40%) 5. Customer Relationship (17,40%)
- 35-44 age group – 1. User Experience (33,75 %) 2. Reliability (26,25%) 3. Security (23,75%) 4. Privacy (8,75%) 5. Customer Relationship (7,50%)
- 45-54 age group - 1. User Experience (25,00 %) 2. Reliability (22,86%) 3. Security (22,14%) 4. Privacy (16,43%) 5. Customer Relationship (13,57%)
- 55-64 age group -1/2. User experience (25,00%) 1/2. Security (25,00%) 3. Privacy (20,00%) 4. Reliability (17,50%) 5. Customer Relationship (12,50%)

Due to the fact, that One-way ANOVA assumptions cannot be met, apart from the structure, the data is not sufficient to conclude findings. For that purpose, Kruskal–Wallis one-way analysis of variance was used and is represented in the Table 7. The information shows that the distribution of values in User Experience, Reliability, Security and Customer Relationship dimensions can be seen as the same across all age groups (p>0,05). One single case connected with Privacy dimensions rejects the null hypothesis, which means that the values varies significantly and for that reason the importance level cannot be considered as evenly distributed between all age groups.

Table 7 Kruskal–Wallis one-way analysis (SPSS)

	Null Hypothesis	**Test**	**Sig.**	**Decision**
1	The distribution of User Experience importance level is the same across categories of Age.	Independent-Samples Kruskal-Wallis Test	,143	Retain the null hypothesis.
2	The distribution of Reliability importance level is the same across categories of Age.	Independent-Samples Kruskal-Wallis Test	,064	Retain the null hypothesis.
3	The distribution of Security importance level is the same across categories of Age.	Independent-Samples Kruskal-Wallis Test	,692	Retain the null hypothesis.
4	The distribution of Privacy importance level is the same across categories of Age.	Independent-Samples Kruskal-Wallis Test	,016	Reject the null hypothesis.
5	The distribution of Customer Relationship importance level is the same across categories of Age.	Independent-Samples Kruskal-Wallis Test	,176	Retain the null hypothesis.
Asymptotic significances are displayed. The significance level is ,050				

In evaluating ranking values through the perspective of respondents' provider preference (Local, Global, Similar preference) ANOVA one-way analysis was used (analysis assumptions were met). Respondents which tend to buy online from global providers and those who tend to have a similar preference, rank the added-value dimensions the same as it was defined in the theoretical part. Although the values differ within these groups, the priority level is the same: 1. User Experience 2. Reliability 3. Security 4. Privacy 5. Customer Relationship.

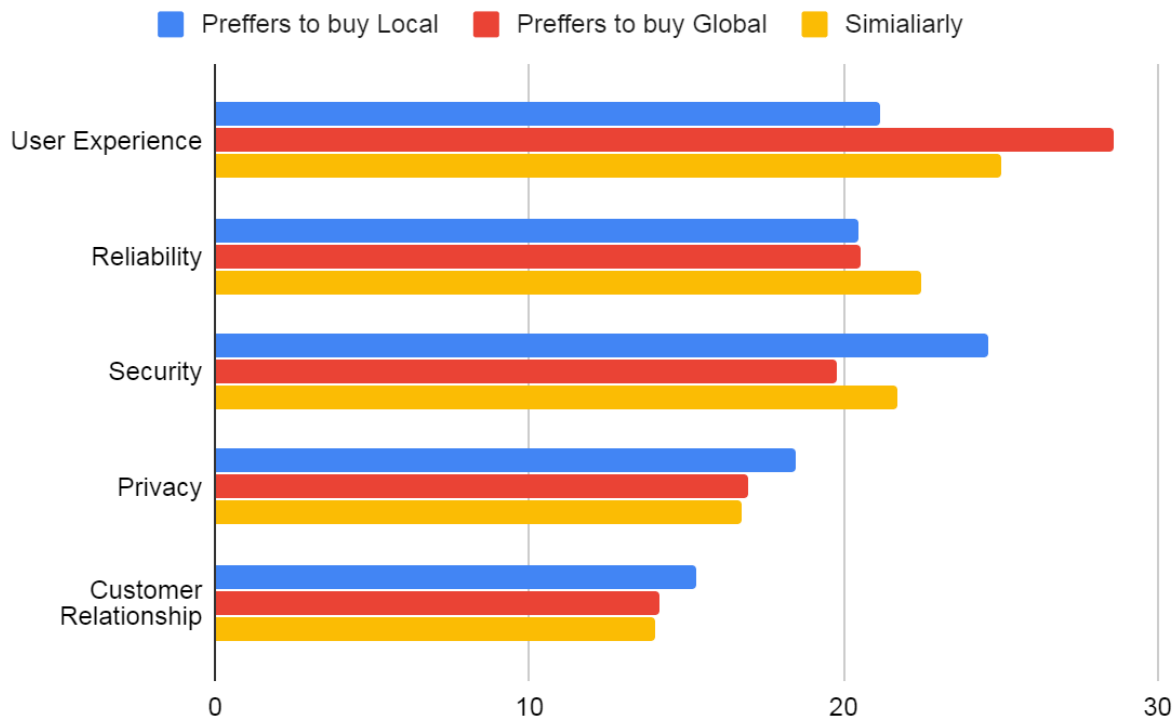


Fig. 18. Importance level distribution taking in the account the buying preference (compiled by the author)

The most significant difference was visible in the group which tends to buy online from local providers. This group gives a substantial importance to the Security dimension and ranks it far in front of the others. The other dimensions rank according to the previously mentioned importance structure: 2. User Experience 3. Reliability 4. Privacy 5. Customer Relationship. The comparisons between all the groups can be seen in Figure 18.

4.3. Survey. Descriptive analysis and Wilcoxon method

In order to look for patterns and signs that can lead to conclusions and guidelines it is necessary to use descriptive method firstly and overlook the answers with their respected mean values. Data analysis will be provided in the following way: user selected values will var from 1 ("Strongly disagree") to 7 ("Strongly agree"). Indicators will have labels in which the measurable item is mentioned and the evaluated subject (for e.g. "Speed at Pigu.lt"). As previously mentioned in Table 5, all of the survey statements were formulated to evaluate how good a specific indicator is (for e.g. indicator "Speed at Pigu.lt" with a mean value of 7, would show that the respondents "Strongly agree" that Pigu.lt provide the ability to perform purchases quickly).

4.3.1. User experience comparison results

By evaluating six user experience-oriented indicators it can be seen that the respondents' value both companies similarly and positively. Most of the mean values for the respected indicators have the range of 5-6, which is "Somewhat agree" and "Agree". However, in 10 of 12 answers the full Likert scale was used, that means there were cases in which some respondents completely disagreed with the statement and others completely agreed. 2 cases in which the minimum values were not used was in favor of Pigu.lt (Convenience and Learnability). The most positively evaluated factors (on average

for both companies) were speed and learnability. The visibly different, negatively evaluated indicator was design. The total average value in User Experience dimension is 5,38. Pigu.lt average is 5,54 and Aliexpress.com 5,22. The difference between these two dimensions are 0,32. Aliexpress.com is valued lowest at learnability, fluidity and design.

Table 8 Descriptive Statistics for User Experience (SPSS, compiled by the author)

	N	Minimum	Maximum	Mean	Std. Deviation
Speed at Pigu.lt	81	1	7	5,78	1,072
Speed at Aliexpress.com	81	1	7	5,38	1,419
Fluidity at Pigu.lt	81	1	7	5,69	1,147
Fluidity at Aliexpress.com	81	1	7	5,20	1,317
Effectiveness at Pigu.lt	81	1	7	5,58	1,34
Effectiveness at Aliexpress.com	81	1	7	5,30	1,373
Convenience at Pigu.lt	**81**	**2**	**7**	**5,53**	**1,05**
Convenience at Aliexpress.com	**81**	**1**	**7**	**5,30**	**1,177**
Learnability at Pigu.lt	81	2	7	5,94	1,004
Learnability at Aliexpress.com	81	1	7	5,28	1,502
Design at Pigu.lt	**81**	**1**	**7**	**4,72**	**1,451**
Design at Aliexpress.com	**81**	**1**	**7**	**4,85**	**1,467**

By looking into the value separately, the majority of the findings (5/6) are in favor of Pigu.lt. Mean values are higher in Speed (5,78 versus 5,38), Fluidity (5,69 versus 5,20), Effectiveness (5,58 versus 5,30), Convenience (5,53 versus 5,30) and Learnability (5,94 versus 5,28). Respectively all the std. deviations are lower for Pigu.lt answers and that means that all the answers are spread more evenly around the average value, compared to Aliexpress.com. However, Aliexpress.com was valued better in the design section.

By using the nonparametric 2 related sample tests with Wilcoxon method (SPSS) it is possible to determine how such factors compare with each other and evaluate their statistical significance. As mentioned before, Pigu.lt leads in Speed (p=0,01), Fluidity (p=0,006), Effectiveness (0,042), Learnability (0,001) and the gap can be considered as statistically significant. Aliexpress.com was valued better in the design section, than Pigu.lt, but the asym. Sig. (2-tailed) value is 0,407 (statistically insignificant). Convenience related data also shows statistically insignificant edge for Pigu.lt (p = 0,105)

As this study is focused on finding the possible opportunities it seems necessary to investigate Convenience and Design indicators more deeply. Table 9 shows the distribution of responses. Although the average score Convenience was valued better for Pigu.lt, 18,5% of total respondents have given and edge to Aliexpress.com and 48,1% consider the experience to be equally convenient. A similar situation can be seen in the Design evaluation, but the edge is given to Aliexpress.com.

Table 9 Wilcoxon signed rank test on Convenience and Desgin (from SPSS)

		N	Mean Rank	Sum of Ranks
Convenience at Aliexpress.com - Convenience at Pigu.lt	Negative Ranks	27a	21,41	578,00
	Positive Ranks	15b	21,67	325,00
	Ties	39c		
	Total	81		
Design at Aliexpress.com - Design at Pigu.lt	Negative Ranks	17d	21,68	368,50
	Positive Ranks	24e	20,52	492,50
	Ties	40f		
	Total	81		

a. Convenience at Aliexpress.com < Convenience at Pigu.lt

b. Convenience at Aliexpress.com > Convenience at Pigu.lt

c. Convenience at Aliexpress.com = Convenience at Pigu.lt

d. Design at Aliexpress.com < Design at Pigu.lt

e. Design at Aliexpress.com > Design at Pigu.lt

f. Design at Aliexpress.com = Design at Pigu.lt

4.3.2. Reliability comparison results

By looking into the six Reliability dimension indicators similar tendencies can be seen as before, most of the indicator mean values represent “Neutral“, “Somewhat agree”, “Agree” .The total average value for this dimension is 4,94. Pigu.lt through all Reliability dimensions indicators aggregates a mean value of 5,08. Aliexpress.com – 4,80. The difference is 0,28. The highest value for Pigu.lt is 5,52 (Capability) and for Aliexpress.com 5,51 (Feedback). Aliexpress.com is valued lowest in information completeness, validity and quality.

Table 10 Descriptive Statistics for Reliability (SPSS, compiled by the author)

	N	Minimum	Maximum	Mean	Std. Deviation
Capability at Pigu.lt	81	1	7	5,52	1,205
Capability at Aliexpress.com	81	1	7	5,09	1,206
Information finding at Pigu.lt	**81**	**1**	**7**	**5,09**	**1,583**
Information finding at Aliexpress.com	**81**	**1**	**7**	**4,93**	**1,358**
Information completeness at Pigu.lt	**81**	**1**	**7**	**4,96**	**1,4**
Information completeness at Aliexpress.com	**81**	**1**	**7**	**4,63**	**1,479**
Validity at Pigu.lt	81	2	7	5,09	1,315
Validity at Aliexpress.com	81	1	7	4,38	1,384
Quality at Pigu.lt	81	2	7	4,85	1,256
Quality at Aliexpress.com	81	1	7	4,3	1,512

Feedback at Pigu.lt	**81**	**1**	**7**	**4,95**	**1,312**
Feedback at Aliexpress.com	**81**	**1**	**7**	**5,51**	**1,216**

The tendencies that majority of the data is in favor of Pigu.lt still exists. 5 of 6 indicators computes a higher mean value for Pigu.lt than Aliexpress.com. That includes Capability (5,52 versus 5,09), Information finding (5,09 versus 4,93), Information completeness (4,96 versus 4,63), Validity (5,09 versus 4,38) and Quality (4,85 versus 4,3). Std. deviation is respectively different between the two subjects (Pigu.lt – 1,583; Aliexpress.com – 1,358) in Information finding indicator, that provides valuable insights that, although Pigu.lt aggregated a higher mean value, the answers are spread less evenly and a bigger gap between the user perceived evaluation exists. Aliexpress.com has a single leading case, which is related to the Feedback indicator.

By using the nonparametric 2 related sample tests with Wilcoxon method (SPSS) it is determined that 4 of 6 indicators show statistical significance. Capability(p=0,003), Validity(p=0,0001), Quality(p=0,001) is statistically significant and in favor of Pigu.lt and Feedback (p=0,002) is in favor of Aliexpress.com. The other two indicators: Information finding (p=0,293) and Information completeness (p=0,072) are considered to be statistically insignificant.

In order to determine the possible opportunities, it seem essential to investigate Feedback, Information finding and Information completeness indicators more in depth. Table 11 provides valuable insights on what quantity of respondents viewed Pigu.lt or Aliexpress.com more positively and what quantity of ties were present. From this information it can be stated that the most prioritized opportunity should be related to Feedback. The second priority should be related to Information finding because the sum of ranks difference is lower than Information completeness and in favor of Pigu.lt.

Table 11 Wilcoxon signed rank test on Feedback, Information finding and Information completeness (from SPSS)

		N	Mean Rank	Sum of Ranks
Feedback at Aliexpress.com - Feedback at Pigu.lt	Negative Ranks	11a	18,32	201,50
	Positive Ranks	31b	22,63	701,50
	Ties	39c		
	Total	81		
Information finding at Aliexpress.com - Information finding at Pigu.lt	Negative Ranks	30d	23,87	716,00
	Positive Ranks	19e	26,79	509,00
	Ties	32f		
	Total	81		
Information completeness at Aliexpress.com - Information completeness at Pigu.lt	Negative Ranks	32g	23,72	759,00
	Positive Ranks	16h	26,06	417,00
	Ties	33i		
	Total	81		

a. Feedback at Aliexpress.com < Feedback at Pigu.lt

b. Feedback at Aliexpress.com > Feedback at Pigu.lt

c. Feedback at Aliexpress.com = Feedback at Pigu.lt

d. Information finding at Aliexpress.com < Information finding at Pigu.lt

e. Information finding at Aliexpress.com > Information finding at Pigu.lt

f. Information finding at Aliexpress.com = Information finding at Pigu.lt

g. Information completeness at Aliexpress.com < Information completeness at Pigu.lt

h. Information completeness at Aliexpress.com > Information completeness at Pigu.lt

i. Information completeness at Aliexpress.com = Information completeness at Pigu.lt

4.3.3. Security comparison results

Security related indicators from the numerical standpoint are similar to Reliability dimension. The average mean score for this dimension is the same – 4,94 (Pigu.lt – 5,21; Aliexpress.com – 4,67). The difference between the two subjects in all indicator mean values is 0,54. Aliexpress.com was valued lowest in the Personal information security indicator (4,23). The biggest gap in the retailers can be seen in Payment security section (Pigu.lt – 5,79; Aliexpress.com – 4,73). Additionally, this indicator for Pigu.lt received the highest minimal value of 3 of all the indicators in all the dimensions. Pigu.lt accumulated the best score in Payment security section and Aliexpress.com in Consistency.

Table 12 Descriptive Statistics for Security (SPSS, compiled by the author)

	N	Minimum	Maximum	Mean	Std. Deviation
Payment security at Pigu.lt	81	3	7	5,79	1,009
Payment security at Aliexpress.com	81	1	7	4,73	1,405
Data availability at Pigu.lt	81	1	7	4,86	1,376
Data availability at Aliexpress.com	81	1	7	4,56	1,492
Consistency at Pigu.lt	81	1	7	5,53	1,026
Consistency at Aliexpress.com	81	1	7	5,17	1,058
Personal information security at Pigu.lt	81	2	7	4,67	1,214
Personal information security at Aliexpress.com	81	1	6	4,23	1,186

All of the security related indicators are in favor of Pigu.lt with a substantial margin: Payment security (5,79 versus 4,73). Data availability (4,86 versus 4,56), Consistency (5,53 versus 5,17), Personal information security (4,67 versus 4,23). According to the Wilcoxon method their margins are substantial enough to secure statistical significance. All of the given indicators accumulate $p<0,05$ (Table 13) In 3 of the 4 indicators Pigu.lt have lower std. deviation values. In Personal information security indicator, the std. deviation value is lower for Aliexpress.com, however the difference can be considered minor as it does not cause statistical significance.

Table 13 Wilcoxon signed rank test statistical significance on Security indicators (SPSS)

	Payment security at Aliexpress.com - Payment security at Pigu.lt	Data availability at Aliexpress.com - Data availability at Pigu.lt	Consistency at Aliexpress.com - Consistency at Pigu.lt	Personal information security at Aliexpress.com - Personal information security at Pigu.lt
Z	-5,654b	-2,348b	-2,498b	-4,163b
Asymp. Sig. (2-tailed)	,000	,019	,012	,000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

4.3.4. Privacy and Customer Relationship comparison results

The last two evaluated dimensions are Privacy and Costumer Relationship. As the quantity of measured factors were relatively small, they will be merged and analyzed in one sub-section. The average mean score for Privacy dimension is 4,59 (Pigu.lt – 4,79; Aliexpress.com – 4,4). The average difference between two subjects for all mean values is 0,39. Both providers tend to have higher evaluations on Privacy visibility (Pigu.lt – 5,14; Aliexpress.com – 4,69) then and the Reasonableness of information collection (Pigu.lt – 4,43; Aliexpress.com – 4,11).

The average score of Customer Relationship dimension is 4,64 (Pigu.lt – 4,89; Aliexpress.com – 4,38). The average difference is the second highest at 0,51. This dimension is the single one which received all of the possible minimum and maximum evaluations in all of the indicators. That is one of the reasons why St. deviation is substantial in each of the given answer.

Table 14 Descriptive Statistics for Privacy and Customer Relationship (SPSS, compiled by the author)

Privacy					
	N	Minimum	Maximum	Mean	Std. Deviation
Privacy visibility at Pigu.lt	81	2	7	5,14	1,148
Privacy visibility at Aliexpress.com	81	1	7	4,69	1,19
Reasonableness at Pigu.lt	81	1	7	4,43	1,369
Reasonableness at Aliexpress.com	81	1	7	4,11	1,36
Customer Relationship					
	N	Minimum	Maximum	Mean	Std. Deviation
Expertise at Pigu.lt	81	1	7	4,74	1,273
Expertise at Aliexpress.com	81	1	7	4,4	1,262
Trust at Pigu.lt	81	1	7	5,05	1,341
Trust at Aliexpress.com	81	1	7	4,37	1,436

The measured indicators related to the Privacy and Customer Relationship dimensions were in favor of Pigu.lt: Privacy visibility (5,14 versus 4,69), Reasonableness (4,43 versus 4,11), Expertise level (4,74 versus 4,4) and Trust (5,05 versus 4,37). St. deviations are similar through both providers: Privacy visibility has relatively low deviation (Pigu.lt – 1,148; Aliexpress.com – 1,19). Trust and Reasonableness indicators have substantially higher values (~1,35). Expertise level is in the middle at around 1,265).

By using the Wilcoxon method, it was identified that 4 of the 4 differences were significant. Pigu.lt has a tangible edge in Privacy visibility (p=0,001), Reasonableness (p=0,004), Expertise (0,023) and Trust (p=0,0001). The exported values from the SPSS can be seen in Table 15.

Table 15 Wilcoxon signed rank test statistical significance on Privacy and Customer Relationship indicators (SPSS)

	Privacy visibility at Aliexpress.com - Privacy visibility at Pigu.lt	Reasonableness at Aliexpress.com - Reasonableness at Pigu.lt	Expertise at Aliexpress.com - Expertise at Pigu.lt	Trust at Aliexpress.com - Trust at Pigu.lt
Z	-3,324b	-2,868b	-2,280b	-3,975b
Asymp. Sig. (2-tailed)	,001	,004	,023	,000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

4.4. Secondary data analysis findings

In this section the all of the secondary data analysis will be conducted. In total 33 parameters were identified through various third parties (Google Page Speed, Google Business, Sort Site) and in some cases certain parameters were tested by the author.

Three dimensions were evaluated in this part of the research: User Experience, Reliability and Security. This decision was made due to the following factors:

1. These dimensions (in certain) parts can be measurable technically and can add additional value to the current research.
2. According to the importance level evaluation all three dimension can be considered as important in all age groups.
3. Survey preliminary results showed possible opportunities in User Experience and Reliability section.

Certain dimensions will have more measurable indicators than others, the main reason for that is the fact that the current technical availability is limited, and certain dimension can be more easily measurable at this point and time. 33 parameters split through dimensions in the following order: User experience will be measured with 21 separate indicators; Reliability will be measured with 9 indicators and Security will be measured with 3 indicators.

4.4.1. User Experience

Secondary data analysis started in User Experience dimension. Desktop version loading speeds were measured for both of the subjects in question. The first measured indicator was “Speed index” to load the initial site (homepage). The difference between the two providers was 0.9 s in favor of Pigu.lt. Worth noting that the Aliexpress.com “Speed index” is average time according to Google. In evaluating “First Contentful” and “First Meaningful” loading the measurements are identical and in favor of Aliexpress.com (0,9 s versus 0.6 s). Nonetheless, both results are considered to be a good and decent loading speed. Similar tendencies can be seen in “Time to Interactive” and “Server response time”, although there are several differences, both subjects have considerably fast metrics and the gap is not tangible. The same metrics were measured in SERP (Search engine results page) with the keyword “adidas” as both companies have a decently high number of related products. Similar trends can be seen as in the homepage section. However, in measuring the “Speed Index” the loading period increases and the gap between the two providers – decreases. Pigu.lt measures at – 1,6 (according to Google this metric is considered moderate) and Aliexrpess.com – 2,4 s (considered slow). Especially, noticeable results can be seen in the “Time to Interactive” section in, which Pigu.lt “Speed Index” almost doubles and reached a moderate metric of – 3,0 s and Aliexpress.com consistently has the same results as in the homepage (2,3 s).

The same test with identical keywords and measurable indicators was processed through Mobile versions of the subject. All the loading parameters have significant speed drop compared to desktop version. In the “Speed Index” section the difference between the two providers decreases to 0,2 s. Aliexpress.com shows instability in “First Contentful/Meaningful Paint” (respectively the loading time increases from 2,5 s to 4,1 s), while Pigu.lt seems to be stable (3,1 s). “Time to Interactive” speed for Pigu.lt is considered slow according to Google standards (8,4 s), while Aliexpress.com measures at the average pace of 6,8 s. The gap in “Server response time” widens (from 0,02 s to 0,09 s) however both subjects achieve relatively fast results. In testing the SERP (Search engine result page) on mobile version it can be seen that Pigu.lt has a disadvantage and loads the content in 5,7s, while the global rival can achieve faster loading speed in 5,3 s). “First Contentful/Meaningful Paint” in SERP pages are quite similar and only minor differences can be spotted. However, in “Time to Interactive” section Aliexpress.com has more than twice the faster speed (5,1 s versus 10,5 s)

The full list of measured indicators and the results can be seen in the Table 16.

Table 16 User Experience. Desktop and Mobile measurements (compiled by the author)

Object	Measurements	Results	Measurements	Results
Pigu.lt	Speed index (Homepage/ Desktop)	1.3 s	Speed index (Homepage/ Mobile)	4.5 s
Aliexpress.com		2.2 s		4.7 s
Pigu.lt	First Contentful Paint (Homepage/Desktop)	0.9 s	First Contentful Paint (Homepage/Mobile)	3.1 s
Aliexpress.com		0.6 s		2.5 s
Pigu.lt	First Meaningful Paint (Homepage/Desktop)	0.9 s	First Meaningful Paint (Homepage/Mobile)	3.1 s
Aliexpress.com		0.6 s		4.1 s
Pigu.lt	Time to Interactive (Homepage/Desktop)	1.8 s	**Time to Interactive (Homepage/Mobile)**	**8.4 s**
Aliexpress.com		2.3 s		**6.8 s**

Pigu.lt	Server response time (Homepage/Desktop)	0.25 s	Server response time (Homepage/Mobile)	0.35 s
Aliexpress.com		0.23 s		0.26 s
Pigu.lt	Speed index (SERP "adidas"/ Desktop)	1.6 s	**Speed index (SERP "adidas"/ Mobile)**	**5.7 s**
Aliexpress.com		2.4 s		**5.3 s**
Pigu.lt	First Contentful Paint (SERP "adidas"/ Desktop)	0.9 s	First Contentful Paint (SERP "adidas"/ Mobile)	3.4 s
Aliexpress.com		0.7 s		3.2 s
Pigu.lt	First Meaningful Paint (SERP "adidas"/ Desktop)	0.9 s	First Meaningful Paint (SERP "adidas"/ Mobile)	3.4 s
Aliexpress.com		1.0 s		3.4 s
Pigu.lt	**Time to Interactive (SERP "adidas"/ Desktop)**	**3.0 s**	**Time to Interactive (SERP "adidas"/ Mobile)**	**10.5 s**
Aliexpress.com		**2.3 s**		**5.1 s**

By measuring the loading speeds certain opportunities are visible. Nonetheless, several additional tests were run by the author in order determine if any visible and tangible differences are present in click count, time to the initial/recurring purchase.

In evaluating how many clicks it takes to make a recurring purchase (when the user has an active account in the providers website and needs to login and proceed with the purchase) it was found that Pigu.lt requires twice as more clicks as the global rival (17 versus 8). “Time to the initial purchase” (in which the users have proceed through the full registration process) is quite similar for both providers and a minor ~10% difference is present. However, “Time to the recurring purchase” (when users have an existing account) is noticeably different. In Pigu.lt users need around 77 seconds to order a product, while in Aliexpress.com the process is more than two times faster – 30 seconds.

Table 17 Additional User Experience measurements (compiled by the author)

Measurements	Object	Results	Source
Click count to the purchase (Recurring / With Log In)	Pigu.lt	17	Tested by the author
	Aliexpress.com	8	
Time to the initial purchase (With Registration)	Pigu.lt	148 s	Tested by the author
	Aliexpress.com	133 s	
Time to the recurring purchase (With Log In)	Pigu.lt	77 s	Tested by the author
	Aliexpress.com	30 s	

4.4.2. Reliability and Security

By extracting the data from Google Business several differences can be seen how customer perceive abilities of these vendors. Lithuanian customers evaluated Aliexpress.com experience better then Pigu.lt (4,9 versus 4,2). However, Pigu.lt has ~35% higher quantity of reviews (806 versus 520). By manually evaluating “Top product review count” it was found that both subjects had a top product the homepage following title – “Xiaomi Mi M365”. In Aliexpress.com the review count was more than ten times higher (460 versus 42). In measuring the website quality, a third-party tool was used. SortSite assessment is highly in favor of Aliexpress.com: while Pigu.lt lacks in accessibility,

compatibility, usability (6-7 of 10 pages have visible issues). Aliexress.com manages to keep such factors under control (on average 0-1 of the 10 pages have visible issues). But Pigu.lt keeps relevantly good results in section like "Error percentage", in which 0 of the 10 pages have visible cases. Aliexpress.com has such issues in 1 of the 10 pages. Both providers equally stand in "Standards issue percentage" section, which checks if the site is compliant with World Wide Web Consortium (identical results at 1 of 10 pages have visible issues).

In the Security dimension only one discrepancy was found – "Key Exchange" score is drastically in favor of Aliexpress.com (90/100), while Pigu.lt manages to reach only mediocre results (50/100). Other indicators, like "Chiper"and "Protocol" scores are identical.

Table 18 Reliability and Security measurements (compiled by the author)

Dimension	Measurements	Object	Results	Source
Reliability	Reputation score	Pigu.lt	4,2/5	Google Business
		Aliexpress.com	4,9/5	
	Comment count (from Lithuania)	Pigu.lt	806	Google Business
		Aliexpress.com	520	
	Errors percentage	Pigu.lt	0%	SortSite
		Aliexpress.com	11%	
	Accessibility percentage	**Pigu.lt**	**71%**	
		Aliexpress.com	**11%**	
	Compatibility percentage	**Pigu.lt**	**71%**	
		Aliexpress.com	**0%**	
	Search engine issue percentage	**Pigu.lt**	**61%**	
		Aliexpress.com	**11%**	
	Standards issue percentages	Pigu.lt	11%	
		Aliexpress.com	11%	
	Usability issue percentages	**Pigu.lt**	**71%**	
		Aliexpress.com	**11%**	
	Top Product review count	**Pigu.lt**	**42**	Tested by the author
		Aliexpress.com	**460**	
Security	Protocol	Pigu.lt	60/100	CryptCheck
		Aliexpress.com	60/100	
	Key Exchange	**Pigu.lt**	**50/100**	
		Aliexpress.com	**90/100**	
	Chiper	Pigu.lt	50/100	
		Aliexpress.com	50/100	

4.5. Results and discussion

In this section of the study, the previously discussed findings will be summarized and explained.

4.5.1. Importance level

In analyzing the importance level from the survey, one single discrepancy can be visible from theoretical tier structure standpoint: in practical findings Security (22,2%) was rated as more important than Reliability (21,0%). Although, the difference is quite slim, the findings do not perfectly match with the structure tier level that was defined in the theory research section. The theory suggested that Reliability (Tier 2) is more significant from customer perceived importance standpoint, than Security (Tier 3). This suggestion was made by taking in account both – similar research and the product types that such companies sell (high frequencies and low pricing). Most likely this discrepancy exists due to certain research limitations that were mentioned in 3.3 section. Several important Reliability dimension factors were not taken into account and/or considered as constant values (e.g. guarantee conditions and possibilities).

In evaluating if the importance level of a particular added value dimension has distributed through all of the age groups similarly, it was found that Privacy perceived importance varies through various age groups. The importance values varied from 8,75% (35-44 age group) to 20% (55-64 age group) and showed exceptional differences compared to other dimensions. For that reason, only Privacy dimension cannot be considered as equally distributed through all of the age groups. These differences might exist due to the fact that Privacy evaluation was made from a narrow (2-item) approach. In which only the privacy visibility and information collection reasonableness was measured. These two factors possibly were not sufficient enough to provide a broad enough definition to all of the respondents and for that reason, gotten several different interpretations. Additionally, it is noticeable that dimensions which are in Tier 3 (Security and Privacy) have a significant gap between them, that would suggest moving Privacy dimension to Tier 4 between Security and Customer Relationship. However, the current research does not have enough data to retain or reject this hypothesis. Such theme could be explored in the future research by scaling the measurable item count and research for a higher quantity of respondents.

The analysis through the perspective of buying preference (Local, Global and Similar preference) provides insights that these groups have a different importance view. The group which tends to make purchases from local providers showed significantly higher importance in the Security dimension compared to others. The other two groups showed the same importance structure which provides a higher emphasis on User Experience and Reliability rather than Security. This data identifies that local e-commerce providers should firstly understand how these groups differentiate and then make added value structure refinement which would appeal to the targeting group.

4.5.2. Survey findings

Survey findings showed that for both retailers (Pigu.lt and Aliexpress.com) customers provided higher evaluations for dimensions, which have higher importance level. The total accumulated average score was similarly in line with the previously defined tier level structure: Tier 1 – User experience (5,38); Tier 2 – Reliability (4,94); Tier 3 – Security (4,94) and Privacy (4,59); Tier 4 – Customer Relationship (4,64). This data shows that these both retailers consciously or subconsciously

tend to focus on the most impactful added value factors, which eventually lead to a more significant competitive advantages.

In analyzing the data from the comparison standpoint one major tendency is visible: Pigu.lt has a decently strong added value structure in comparison with Aliexpress.com. From the 20 indicators that were measured, 18 were in favor of Pigu.lt. Especially a significant gap in favor of Pigu.lt are being felt in the following dimensions: Security, Privacy, Customer Relationship. Every indicator in these dimensions were in favor of Pigu.lt and the gap was statistically significant. However, five opportunities to improve or create a competitive advantage were visible in the User Experience and Reliability dimensions:

1. The most noticeable opportunity comes from Feedback indicator dimension (encouraging customer to provide feedback on their experience) which is in the Reliability dimension. This was the single case in which the edge was given to the Aliexpress.com in which statistical significance is present. Customer tend to feel that Aliexpress.com encourages customers more to leave feedback about their experience. That correlates with the total feedback count that is present in the system.
2. An additional indicator which accumulated a higher value for Aliexpress.com was – design. Although, in this case no statistical significance was present, a close to neutral Pigu.lt evaluation (4,72) provides insights, that customer do not perceive the website design as appealing or attractive.
3. Information finding (Reliability dimension) has an average value in favor of Pigu.lt. However, the minor gap between average values and higher st. deviation in Pigu.lt answers provide insights that this indicator can be viewed as an additional opportunity for Pigu.lt in creating a competitive advantage. At this point and time, there is no significance difference in easiness to find all the needed product related information between these two providers.
4. Convenience (User experience dimension) 48 % of the total respondents had equal evaluations in this category for both providers. 30% of the respondents favored Pigu.lt, while the rest (22%) Aliexpress.com. This comparison between the two providers was not significant. For that reason, the results impose that not tangible difference is present, and it can be viewed as an additional opportunity for Pigu.lt.
5. Information completeness (Reliability dimension) asked respondents to evaluate if the subjects have enough information about their products. 16 respondents have given an edge to Aliexpress.com. Twice more people favored Pigu.lt. However, most of the respondents equally evaluated both of the providers and due to low difference in mean value there no statistical significance was recoded. For that reason, Information completeness dimension can be considered as a possible opportunity for Pigu.lt

In evaluating what overall weaknesses the research has showed about Aliexpress.com it essential to look at the average mean values for each of the dimensions for this provider: User Experience – 5,21; Reliability – 4,80; Security – 4,67; Privacy – 4,4; Customer Relationship – 4,38. Such values are in complete accordance with importance structure which was defined in the theory research. With the following data assumptions can be made, that Aliexpress.com focuses on the most important dimensions firstly. Nonetheless, no visible and tangible neglections of one or several dimensions are visible. The following indicators from each of the dimension was evaluated significantly worst then others and can be considered as possible opportunities for local rivals:

- User Experience. Indicator – Design. Mean value – 4,85.

- Reliability. Indictor – Quality. Mean value – 4,3
- Security. Indicator – Personal information security. Mean value – 4,23
- Privacy. Indicator – Information collection reasonableness. Mean value – 4,11
- Customer Relationship. Indicator – Trust. Mean value – 4,37

4.5.3. Secondary data analysis findings

Secondary data analysis of User Experience dimension showed that in some metrics Pigu.lt has decently fast results but there are cases in which the local provider has considerably bad evaluations. Such bad evaluations can be considered as opportunities for Pigu.lt The most noticeable issues were related to the Mobile version of the site. Two opportunities arise: metrics like "Time to Interactive (Homepage/Mobile" and "Time to Interactive (SERP "adidas"/Mobile)" were respectively measured at 8,4 s and 10,5. Such results were both: lower than Aliexpress.com and considered as slow in accordance to Google standards. Additional tendencies were noticed regarding the fact that Pigu.lt have lower capabilities to ensure the consistency of the site speed in different parts of the site. "Speed Index (Homepage/Mobile" was greater that Aliexpress.com (4,5 s versus 4,7 s). However, "Speed Index (SERP "adidas"/Mobile" sees a drop and measure lower than the global rival (Pigu.lt – 5,7 s; Aliexpress.com – 5,3 s).

One of the most visible drop backs was noticed in the time to the purchase. While measurements about the time to make the initial purchase (with registration) while quite similar, Pigu.lt bottleneck occurred in the recurring purchase process flow: to make a recurring purchase of a product from in Pigu.lt (with login) the user needs to make twice as more clicks than in Aliexpress.com (17 versus 8). Naturally, the time that to fulfil such action is also more than twice bigger (77s versus 30s). These issues correlate with the site layout patterns and to an ineffective buying process flow from Pigu.lt

In the Reliability dimensions several additional opportunities are noticeable. Pigu.lt top product review count is significantly lower than Aliexpress.com. Such data correlates with one of the key opportunities that was mentioned in section 3.2. which is centered around feedback encouragement. Additional noticeable opportunities in Reliability and Security dimensions are: quality measurements showed that Pigu.lt lacks professionalism in comparison with Aliexpress.com in the following indicators: Accessibility, Compatibility, Search engine issues, Usability. Pigu.lt security method of cryptography while the two parties are in exchange is substantially lower than Aliexpress.com.

In evaluating overall weaknesses of Aliexpress.com only those metrics which have quality/comparison scales can be analyzed. For that reason, only User Experience related dimension can be used. Aliexpress.com has two metrics which are considered as slow – "First Meaningful Paint (Homepage/Mobile)" and "Speed index (SERP "adidas"/ Desktop)". A tendency is visible about loading speeds in the mobile version being moderate.

4.5.4. Key readings. Priorities for competitive advantage.

In concluding all the results from two different approaches, it is essential to single out, group and prioritize the possible opportunities in Pigu.lt and Aliexpress.com case. In order to prioritize the previously analyzed and described opportunities it is necessary to consider not only the exact measurements and their statistical significance, but additionally the tier level and the importance level of different groups. The potential target group for Pigu.lt are those customers who currently prefer to make purchases through global provides and those who have similar preference for both – local and

global providers. Such groups emphasize and see the highest importance in User experience and Reliability dimensions. Because of that reason, all the found opportunities in these dimensions are considered as viable.

Table 19 Identified competitive advantage opportunities (compiled by the author)

Survey						
Dimension	**Measurement**	**Pigu.lt**	**Aliexpress.com**	**Asymp. Sig.**	**Explanation**	**Priority**
User - experience (Tier 1)	Convenience	5,53	5,3	0,105	Pigu.lt edge is statistically insignificant	**2**
	Design	4,72	4,85	0,407	Aliexpress.com edge is statistically insignificant	
Reliability (Tier 2)	Feedback	4,95	5,51	0,002	Aliexpress.com edge is statistically significant	**1**
	Information finding	5,09	4,93	0,293	Pigu.lt edge is statistically insignificant	**3**
	Information completeness	4,96	4,63	0,072	Pigu.lt edge is statistically insignificant	
Technical parameter-oriented research						
Dimension	**Measurement**	**Pigu.lt**	**Aliexpress.com**	**Explanation**		
User - experience (Tier 1)	Time to Interactive (Homepage/Mobile)	8,4 s	6,8 s	Pigu.lt has significantly lower results then Aliexpress.com and the measured speed is considered to be slow		**2**
	Time to Interactive (SERP "adidas"/ Mobile)	10,5 s	5,1 s	Pigu.lt has significantly lower results then Aliexpress.com and the measured speed is considered to be slow		
	Speed index (SERP "adidas"/ Mobile)	5,7 s	5,3 s	Pigu.lt is unable to keep the "Speed Index" advantage from the Desktop version		
	Click count to the purchase (Recurring / With Log In)	17	8	Pigu.lt measurable quantity of clicks from the homepage to the end of the purchase is more than two times higher than its global rival		
	Time to the recurring purchase	77s	30s	Pigu.lt measured time from homepage to the end purchase including the login, is more two times higher than its global rival		
Reliability (Tier 2)	Top Product review average count	42	460	The amount of the reviews the exact products get in these two subjects are significantly different		**1**
	Accessibility issues percentage	71%	11%	Percentage of issues related accessibility for older users, people with disabilities and or special needs		**4**
	Compatibility issue percentage	71%	0%	Percentage of pages that have browser specific issues		
	Search engine issue percentage	61%	11%	Percentage of pages that show search engine guidelines violations or that pages do not follow the search optimization best practices		

	Usability issue percentage	71%	11%	Percentage of pages that has navigation issues	

The number 1 priority is being given to the "Feedback" measurement. Both research approaches identified that Pigu.lt lacks the ability to collect and provide feedback to the end-user about their products and experience. Although Reliability is considered Tier 2 (in the potential target group), the highest priority is being given because statistical significance was present in this single case. Competitive advantage creation priority number 2 was given to the User experience related measurements. Design and Convenience was identified as possible opportunities for competitive advantage creation. Although these measurable indicators were different, the technical data suggest that these indicators could be improved together. Technical parameter-oriented study, proposes that Pigu.lt should consider re-evaluating their website design, focusing more on user convenience, which includes buying process flow button placement and mobile version of the site. The third priority is being given to product related information group, which includes information finding and completeness. Visible inconsistencies between the two research approaches were not seen in the previously mentioned cases, for that reason the opportunities are marked as **main** and will represent the key findings.

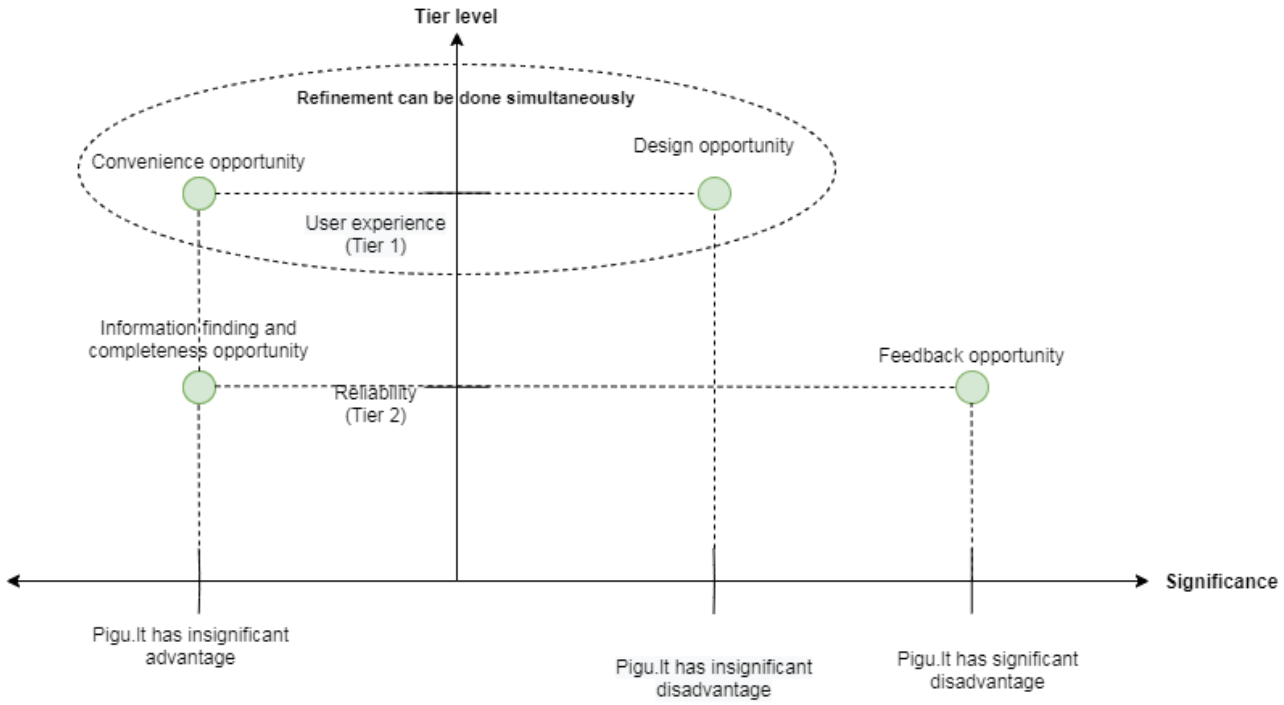


Fig. 19. Simplified visualization of main competitive advantage opportunities (compiled by the author)

The last priority (fourth) was given to the website quality improvement and due to the discrepancies between two research approaches (technical data analysis provided insights that Pigu.lt has several issues connected with accessibility, compatibility, search engine and usability. But the survey results indicated that such problem might not exists or be felt from the user perspective) this opportunity is considered in a lower tier as the previous ones and is marked as an **additional** opportunity. In the Security related dimension there was an indicator ("Key Exchange"), which might be considered as an opportunity. However, taking in the account the survey results, which indicated that the end-consumer does feel that Pigu.lt is far ahead (statistical significance was present) in this dimension, such opportunity is considered not worthwhile.

Conclusions

1. The main problem about local and global competition risks were defined. The following reasons were identified, and opportunities highlighted:
   a) Lithuanian online shoppers tend to buy more from global companies (75%) than EU average (52%).
   b) The political development aim is to lead the ecommerce industry to more accessible and equal usage of all ecommerce created benefits and create a borderless experience. Such aim, if reached will eventually ease the process of entry for global rivals.
   c) Lithuanian local market size and the number of online shoppers are continuously growing. The bigger potential will eventually attract more entrants and global rivals.
   d) Local companies could use the vastly growing ecommerce industry to their advantage and by understanding how to compete with global rivals, accelerate their growth globally.
2. Added value creation was defined through the process of refinement (the ability to measure the needed factors, compare, prioritize them and make data driven improvements.). Added value structure was defined through the five main dimensions – User Experience, Reliability, Security, Privacy and Customer Relationships. Links and relationships between the dimensions were analyzed and considered. Added value dimensions were prioritized according to their importance level by analyzing similar research and taking in the account the analyzed product type (HF/LC). A final added value structure diagram was created (Figure 13).
3. Pigu.lt and Aliexpress.com customer perceived added value structure was empirically investigated. The following insights were identified:
   a) Only one discrepancy was visible (Security dimension had a higher ranking than Reliability) from the importance structure which was defined in the theory. All added value dimensions, apart Privacy, had equally distributed importance rankings between all age groups.
   b) Customers who tend to buy from local providers (40,7%) have an overall bigger importance in the Security dimensions. Customer who tend to buy from global providers or have a similar preference (59,3%) have the exact added-value structure which was defined in the theory. A bigger emphasis is given to User Experience and Reliability rather than Security.
   c) Taking in the account the previously mentioned points, a target group for Pigu.lt was selected: Customer who tend to buy from global providers or have a similar preference. By considering this target group the main refinement opportunities were set to center around **User Experience** and **Reliability** dimensions.
4. In Pigu.lt versus Aliexpress.com rivalry case the following **main** refinement opportunities to create competitive advantage were found for Pigu.lt (presented in order of the defined priority level):
   a) Encouraging customer to leave feedback about products and their experience, that way aggregating a higher quantity of reviews and increasing the perceived value on **Reliability** dimension.
   b) Re-evaluating their website design and focusing more on user convenience, which includes buying process flow, button placement and the mobile version of the site and that way increasing the perceived value on **User Experience** dimension.
   c) Focusing on product related information, making it more complete and easier to find and that way increasing the perceived value on **Reliability** dimension.

5. It is recommended that other local providers should consider creating a competitive advantage from the identified Aliexpress.com **weak points.** The following weak points are considered as opportunities and highlighted below:
   a) Weakest dimensions are – Privacy and Customer Relationship.
   b) The weakest indicators in each dimension were identified: Design, Quality, Personal information security, Information collection reasonableness and Trust.
   c) Several technical-oriented measurements were identified as slow - “First Meaningful Paint (Homepage/Mobile)” and “Speed index (SERP "adidas"/ Desktop)”.
   d) A tendency was visible about loading speeds in the mobile version being moderate.

List of references

1. Anic, I., Škare, V., & Kursan Milaković, I. (2019). The determinants and effects of online privacy concerns in the context of e-commerce. Electronic Commerce Research and Applications, 36, 100868.
2. Aries Susanto, H., & Younghoon Chang. (2014). Determinants of initial trust formation in electronic commerce acceptance in Indonesia. 2014 IEEE Conference on Systems, Process and Control (ICSPC 2014), 96-100.
3. Barrutia, J., Paredes, M., & Echebarria, C. (2016). Value co-creation in e-commerce contexts: Does product type matter? European Journal of Marketing, 50(3/4), 442-463.
4. Bhattacherjee, A. (2002): Individual Trust in Online Firms: Scale Development and Initial Test. Journal of Management Information Systems, Vol. 19, No. 1, pp. 211–241
5. Bollini, L. (2017). Beautiful interfaces. From user experience to user interface design. The Design Journal, 20(Sup1), S89-S101.
6. Boyer, K.K. & Pagell M. (2000): Measurement issues in empirical research: improving measures of operations strategy and advanced manufacturing technology. Journal of Operations Management, Vol. 18, No. 3, pp. 361-374
7. Chakraborty, S., Chakraborty, D., Dey, B., Banerjee, S.& Singh, S. (2014). Evaluation of the Effective Usage of Web Site Using Interactions of Users for Refinement. 2014 Fourth International Conference on Communication Systems and Network Technologies, 483-486.
8. Chin et al. (2008): A Fast Form Approach to Measuring Technology Acceptance and Other Constructs. MIS Quarterly, Vol. 32, No. 4, pp. 687-703.
9. Chou, J. (2018). A psychometric user experience model based on fuzzy measure approaches. Advanced Engineering Informatics, 38, 794-810.
10. Čiarnienė, Ramunė, Vienažindienė, Milita, & Vojtovich, Sergej. (2017). Process improvement for value creation: A case of health care organization. Inžinerinė Ekonomika, 28(1), 79-87.
11. Colquitt & Rodell (2011): Justice, trust, and trustworthiness: A longitudinal analysis integrating three theoretical perspectives. Academy of Management Journal, Vol. 54, No. 6, pp. 1183–1206
12. Delina, Radoslav. (2015). Trust building service model for digital business platforms. Systémová Integrace, 22(4), 3-19.
13. Doherty, N., & Ellis-Chadwick, F. (2010). Evaluating the role of electronic commerce in transforming the retail sector. The International Review of Retail, Distribution and Consumer Research, 20(4), 375-378.
14. Feindt, S., Jeffcoate, J., & Chappell, C. (2002). Identifying Success Factors for Rapid Growth in SME E-commerce. Small Business Economics, 19(1), 51-62.
15. Fenton, A., Gallagher, K., Heinze, A., Fletcher, G., & Griffiths, M. (2020). Conducting a competitor analysis in the digital age. In Strategic Digital Transformation: A Results-Driven Approach (1st ed., pp. 80-85). Routledge.
16. Fuqing Z., & Guohong L. (2011). Study on security of electronic commerce information system. 2011 2nd International Conference on Artificial Intelligence, Management Science and Electronic Commerce (AIMSEC), 1546-1549.
17. Gothelf, J. (2017). Sense and Respond: How Successful Organizations Listen to Customers and Create New Products Continuously.

18. Grumadaitė, Kristina, & Jucevičius, Giedrius. (2014). Reguliavimo ir savireguliacijos problema šiuolaikinėse sistemose. Viešoji Politika Ir Administravimas = Public Policy and Administration, 13(3), 386-399.
19. Han, K., & Noh, M. (1999). Critical Failure Factors That Discourage the Growth of Electronic Commerce. International Journal of Electronic Commerce, 4(2), 25-43.
20. Hartono, E., Holsapple, C., Kim, K., Na, K., & Simpson, J. (2014). Measuring perceived security in B2C electronic commerce website usage: A respecification and validation. Decision Support Systems, 62(C), 11-21.
21. Hellweger, S., & Wang, X. (2015). What is User Experience Really: Towards a UX Conceptual Framework.
22. Huancheng L., & Xiaolong L. (2012). The protection of the privacy right in electronic commerce. 2012 2nd International Conference on Consumer Electronics, Communications and Networks (CECNet), 690-693.
23. Jiang, L., Jun, M. & Yang, Z. Serv Bus (2016). 10: 301. Customer-perceived value and loyalty: how do key service quality dimensions matter in the context of B2C e-commerce? https://doi.org/10.1007/s11628-015-0269-y
24. Jung, T., Kaß, C., Schramm, T., & Zapf, D. (2017). So, what really is user experience? An experimental study of user needs and emotional responses as underlying constructs. Ergonomics, 60(12), 1601-1620.
25. Kaushik, V., Khare, A., Boardman, R., & Cano, M. (2020). Why do online retailers succeed? The identification and prioritization of success factors for Indian fashion retailers. Electronic Commerce Research and Applications, 39, Electronic Commerce Research and Applications, January 2020, Vol.39.
26. Lallemand, C., Gronier, G., & Koenig, V. (2015). User experience: A concept without consensus? Exploring practitioners' perspectives through an international survey. Computers in Human Behavior, 43, 35-48.
27. Liefa L., & Kanliang W. (2010). Strategy for building initial trust in B2C electronic commerce. 2010 International Conference on Networking and Digital Society, 1, 282-285.
28. Lin, S., & Fu, H. (2012). Uncovering Critical Success Factors for Business-to-Customer Electronic Commerce in Travel Agencies. Journal of Travel & Tourism Marketing, 29(6), 566-584.
29. Lumley, T., Diehr, P., Emerson, S. & Chen, L. (2002). The Importance Of The Normality Assumption in Large Public Health Data Sets, 151-167
30. Ma, Z., Li, Y., & Zhou, F. (2014). An e-commerce-oriented creditworthiness service. Service Oriented Computing and Applications, 8(3), 191-198.
31. Mahut, Bouchard, Omhover, Favart, & Esquivel. (2018). Interdependency between user experience and interaction: A Kansei design approach. International Journal on Interactive Design and Manufacturing (IJIDeM), 12(1), 105-132.
32. Markoff, J (2005), What the Dormouse Said.
33. Metzger, M. (2007). Communication Privacy Management in Electronic Commerce. Journal of Computer-Mediated Communication, 12(2), 335-361.
34. Mohammed, Z., & Tejay, G. (2017). Examining privacy concerns and ecommerce adoption in developing countries: The impact of culture in shaping individuals' perceptions toward technology. Computers & Security, 67, 254-265.

35. Mubarak Alharbi, I., Zyngier, S., & Hodkinson, C. (2013). Privacy by design and customers' perceived privacy and security concerns in the success of e-commerce. Journal of Enterprise Information Management, 26(6), 702-718.
36. Muhammad Waleed Ayub Ghouri, Muhammad Ali Hussain, Tehmina Kanwal, Bilal Afzal, & Mamoon Rasheed. (2018). Influence Of E-Commerce On Business Growth In Pakistan: An Approach To Analyze Privacy, Threats And Consumer Trust In Business. 15(2), 2
37. Nelson, B. (2014). Tapping the wisdom of the crowd: New initiatives are engaging the public as active participants in biomedical research. Cancer Cytopathology, 122(6), 395-396.
38. N'Goala, G., & Cases, A. (2012). Monitoring Customer Relationship in E-Commerce: Which Drivers and Which Effects on Buying Behavior. Recherche Et Applications En Marketing (English Edition), 27(4), 95-117.
39. Panya, A., & Ramingwong, L. (2014). A framework for building trust in B2C E-commerce based on consumer's viewpoint in Thailand. 20th Asia-Pacific Conference on Communication (APCC2014), 271-276.
40. Papadopoulou, P., Andreou, A., Kanellis, P., & Martakos, D. (2001). Trust and relationship building in electronic commerce. Internet Research, 11(4), 322-332.
41. Patricea E.P. (2010). Scales for measuring Perceived Risk in E-commerce – Testing influences on Reliability. Management & Marketing, VIII(1s), 81-92.
42. R. Serbu. (2016). An approach to Self – and Co- Regulation of Electronic Commerce in Building Trust over the internet. Vìsnik. Kiïvs′kogo Nacìonal′nogo Unìversitetu ìmenì Tarasa Ševčenka. Ekonomìka, 10(187), 18-20.
43. Sawmy, T., & Damar-Ladkoo A. (2015). Wholesale And Retail E-Commerce In Mauritius: Views Of Customers And Employees. Studies in Business and Economics, 10(2), 170-186.
44. Sebora, Terrence C. (2009). Critical success factors for e-commerce entrepreneurship: An empirical study of Thailand. Small Business Economics, 32(3), 303-317.
45. Seckler, M., Heinz, S., Forde, S., Tuch, A., & Opwis, K. (2015). Trust and distrust on the web: User experiences and website characteristics. Computers in Human Behavior, 45, 39-50.
46. Sloss, B., Nukala, S., & Rau, V. (2019). Metrics that matter. Communications of the ACM, 62(4), 88.
47. Soon, J., & Abawajy. (2012). E-Commerce trust management system reliability. 2012 6th International Conference on New Trends in Information Science, Service Science and Data Mining (ISSDM2012), 13-18.
48. Suojanen, T., Koskinen, K., & Tuominen, T. (2015). Usability and user experience. In User-Centered Translation (1st ed., pp. 13-28). Routledge.
49. Terzi, N (2011), The impact of e-commerce on international trade and employment (viewed at 2020.02.02), 746.
50. Tsao, W., Hsieh, M., & Lin, T. (2016). Intensifying online loyalty! The power of website quality and the perceived value of consumer/seller relationship. Industrial Management & Data Systems, 116(9), 1987-2010.
51. Walumbwa et al. (2008): Authentic Leadership: Development and Validation of a Theory-Based Measure? Journal of Management, Vol. 34, No. 1, pp. 89–126
52. Whittle, Dustin, & Confreaks, LLC. (2015). Performance Testing for Modern Apps. DjangoCon US.

53. Wigand, R. (1997). Electronic Commerce: Definition, Theory, and Context. The Information Society, 13(1), 1-16.
54. Yanusha, M., Kartheeswaran, T., & Lojenaa, N. (2018). Usability and Accessibility Analysis of Online Banking Systems in Sri Lanka. 2018 IEEE International Conference on Computational Intelligence and Computing Research (ICCIC), 1-7.
55. Yaojun Yan, & Shuning Li. (2013). Management System Discussion of Electronic Commerce Security. 2013 International Conference on Communication Systems and Network Technologies, 681-684.
56. Yoon, D., Choi, S., Sohn, D., Taylor, Charles R., & Lee, Doo-Hee. (2008). Building customer relationships in an electronic age: The role of interactivity of E-commerce Web sites. Psychology and Marketing, 25(7), 602-618.
57. Zhao-Fu Tian, Hao Xu, & Ning-Ning Xu. (2010). Notice of Retraction: Consumers' perceived security risks in e-commerce: A survey study. 2010 3rd International Conference on Computer Science and Information Technology, 3, 532-535.
58. Zheng, C., Yu, X., & Jin, Q. (2017). How user relationships affect user perceived value propositions of enterprises on social commerce platforms. Information Systems Frontiers, 19(6), 1261-1271.
59. Zhou, T., Lu, Y., & Wang, B. (2016). Examining online consumers' initial trust building from an elaboration likelihood model perspective. Information Systems Frontiers, 18(2), 265-275.

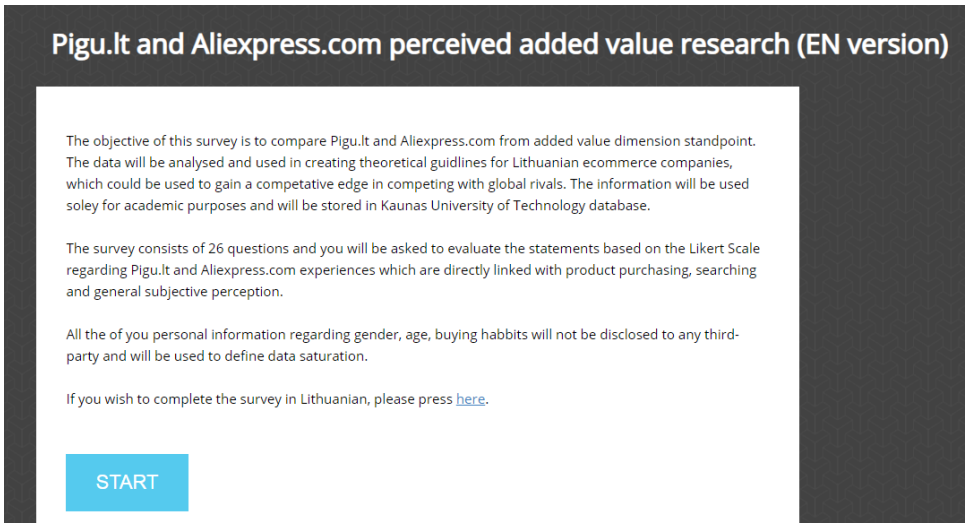
List of information sources

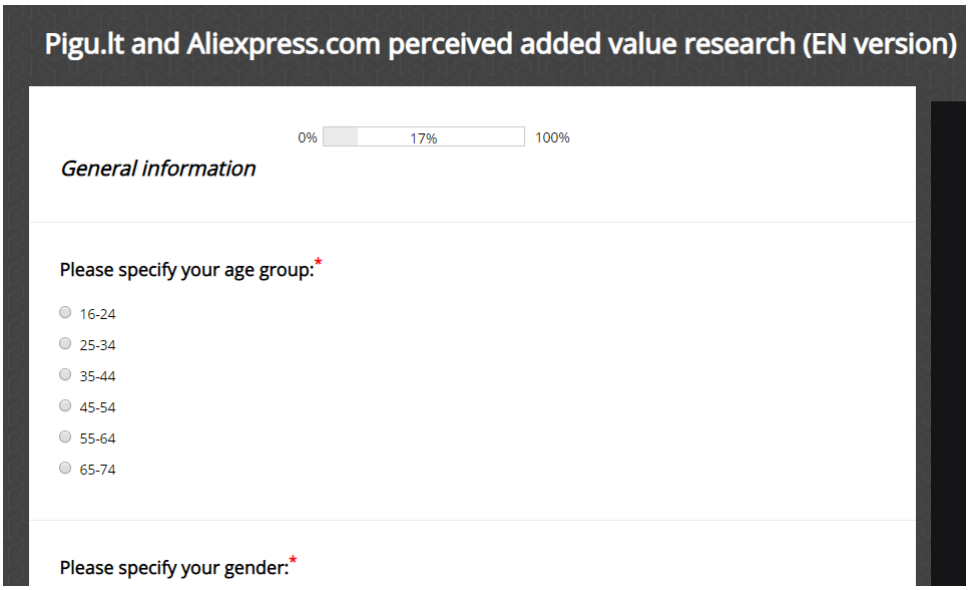
1. 2019m. gruodžio mėnesio internet parduotuvių apžavlga (viewed 2020.02.02) Retrieved from: https://www.internetoparduotuves.lt/apzvalgos/
2. A Union that strives for more. My Agenda for Europe. President of the European Commssion Ursula von der Layen. (viewed 2020.02.15). Retrieved from: https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_en.pdf
3. eCommerce. Lithuania (viewed 2020.02.02). Retrieved from: https://www.statista.com/outlook/243/143/ecommerce/lithuania?currency=eur
4. El. Parduotuvių skaičius Lietuvoje sparčiai auga (viewed 2020.02.02) Retrieved from: https://www.delfi.lt/m360/naujausi-straipsniai/el-parduotuviu-skaicius-lietuvoje-sparciai-auga.d?id=79735109
5. European Commission. New EU rules on e-commerce. (viewed 2020.02.15). Retrieved from: https://ec.europa.eu/digital-single-market/en/new-eu-rules-e-commerce
6. European Parliament. Economic and scientific Policy (viewed 2020.02.27) Retrieved from: https://www.europarl.europa.eu/RegData/etudes/etudes/join/2012/492433/IPOL-IMCO_ET(2012)492433_EN.pdf
7. Kauna diena article "Vis daugiau lietuvių apsiperka užsienio internetinėse parduotuvėse" (viewed 2020.02.15). Retrieved from: https://kauno.diena.lt/naujienos/verslas/ekonomika/vis-daugiau-lietuviu-apsiperka-uzsienio-internetinese-parduotuvese-804923
8. Lithuania eCommerce Insights (viewed 2020.02.16). Retrieved from: https://learning.eshopworld.com/ecommerce-blog/lithuania-ecommerce-insights-2018/
9. Lithuanian e-commerce company seeks to become Baltic Aliexpress. (viewed 2020.02.16). Retreived from: https://en.delfi.lt/business/lithuanian-e-commerce-company-seeks-to-become-baltic-aliexpress.d?id=82155413
10. Net revenue of Amazon from 1st quarter 2007 to 4th quarter 2019 (viewed 2020.02.02) Retrieved from: https://www.statista.com/statistics/273963/quarterly-revenue-of-amazoncom/
11. Oberlo article "The Future of Ecomerce: How Ecommerce Will Change in 2020 and Beyond" (viewed 2020.02.15). Retrieved from: https://www.oberlo.com/blog/future-of-ecommerce
12. Residents of Lithuania. Population and composition (2019) (viewed 2020.04.16). Retrieved from -https://osp.stat.gov.lt/lietuvos-gyventojai/lietuvos-gyventojai-2019/salies-gyventojai/gyventoju-skaicius-ir-sudetis
13. Retail e-comerce sales worldwide from 2014 to 2023 (viewed 2020.02.02) Retrieved from: https://www.statista.com/statistics/379046/worldwide-retail-e-commerce-sales/
14. Statistikos departamentas: e.prekybos apimtis auga (viewed 2020.02.02). Retrieved from: https://www.vz.lt/prekyba/2019/08/19/statistikos-departamentas-e-prekybos-apimtis-auga
15. The "Amazon Effect": How Ecommerce Will Change in 2019 and Beyond (2019) (viewed 2020.05.10) Retrieved from - https://www.entrepreneur.com/article/325556

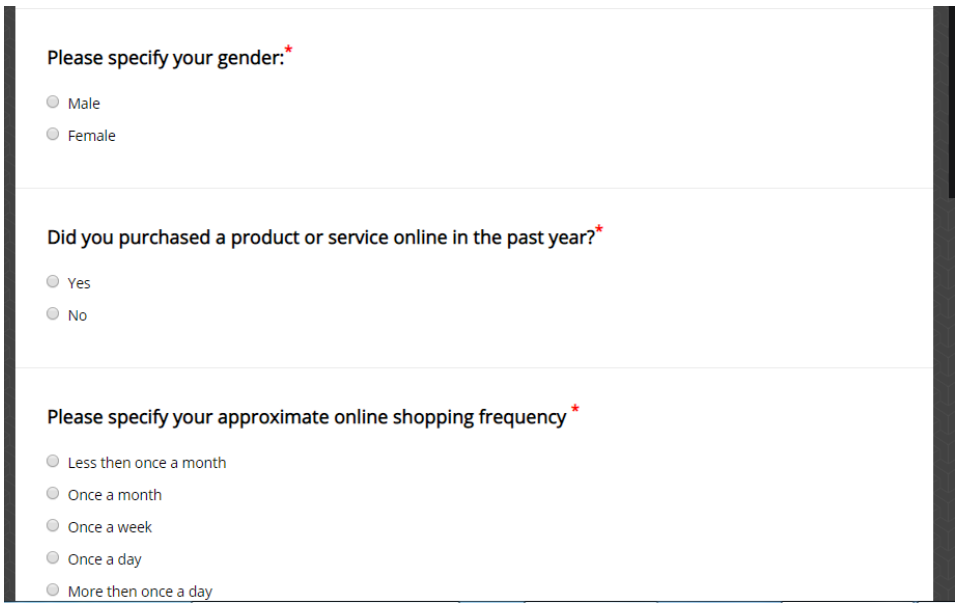
Appendices

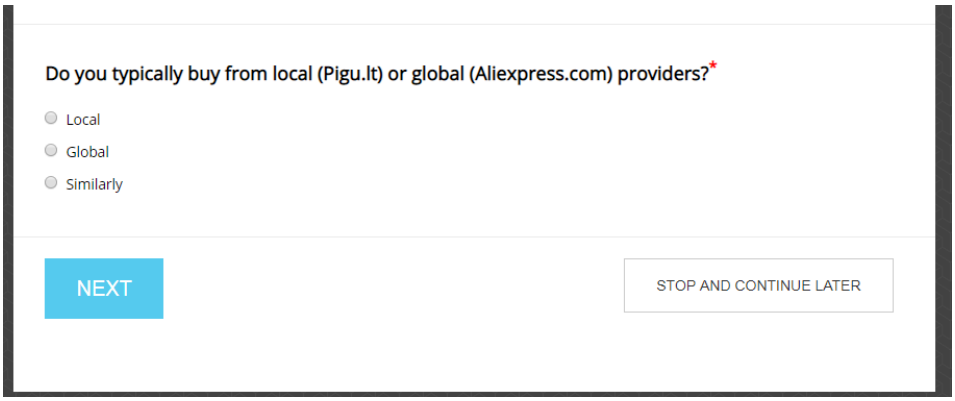
Appendix 1. Survey photos.

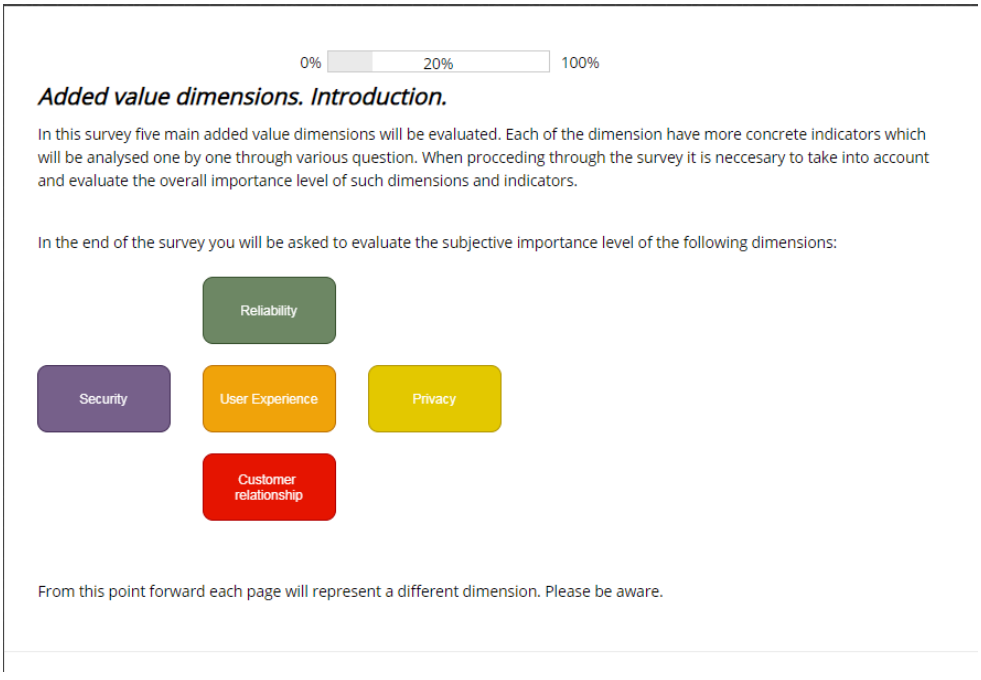
This appendix will include pictures of the survey that was used in the research. There was a Desktop and a Mobile version of the survey.

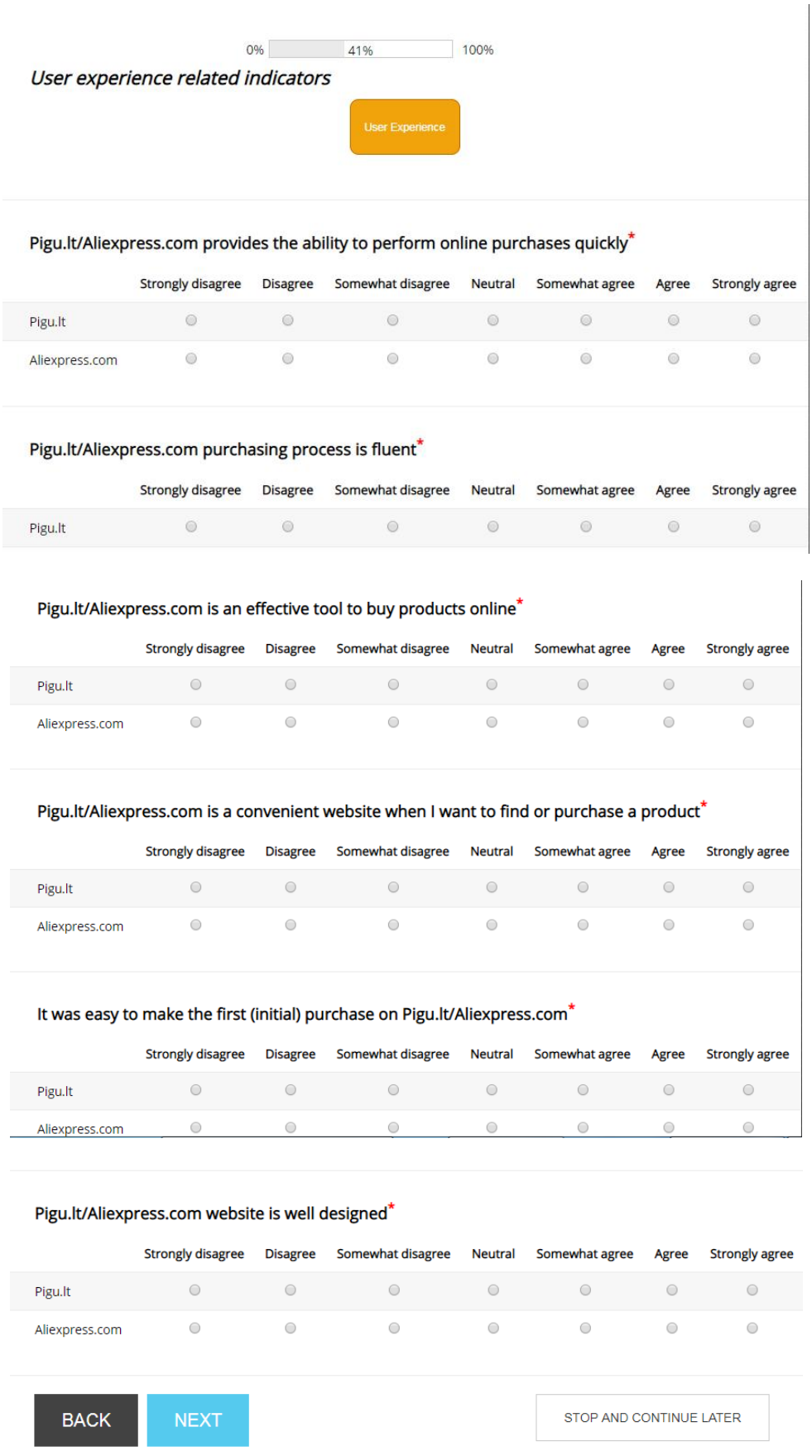





Please specify your gender:*
Male
Female
Did you purchased a product or service online in the past year?*
Yes
No
Please specify your approximate online shopping frequency *
Less then once a month
Once a month
Once a week
Once a day
More then once a day


Do you typically buy from local (Pigu.lt) or global (Aliexpress.com) providers?*
Local
Global
Similarly
NEXT
STOP AND CONTINUE LATER


0%
20%
100%
Added value dimensions. Introduction.
In this survey five main added value dimensions will be evaluated. Each of the dimension have more concrete indicators which will be analysed one by one through various question. When procceding through the survey it is neccesary to take into account and evaluate the overall importance level of such dimensions and indicators.
In the end of the survey you will be asked to evaluate the subjective importance level of the following dimensions:
Reliability
Security
User Experience
Privacy
Customer relationship
From this point forward each page will represent a different dimension. Please be aware.


0%
41%
100%
User experience related indicators
User Experience
Pigu.lt/Aliexpress.com provides the ability to perform online purchases quickly*
Strongly disagree
Disagree
Somewhat disagree
Neutral
Somewhat agree
Agree
Strongly agree
Pigu.lt
Aliexpress.com
Pigu.lt/Aliexpress.com purchasing process is fluent*
Strongly disagree
Disagree
Somewhat disagree
Neutral
Somewhat agree
Agree
Strongly agree
Pigu.lt
Pigu.lt/Aliexpress.com is an effective tool to buy products online*
Strongly disagree
Disagree
Somewhat disagree
Neutral
Somewhat agree
Agree
Strongly agree
Pigu.lt
Aliexpress.com
Pigu.lt/Aliexpress.com is a convenient website when I want to find or purchase a product*
Strongly disagree
Disagree
Somewhat disagree
Neutral
Somewhat agree
Agree
Strongly agree
Pigu.lt
Aliexpress.com
It was easy to make the first (initial) purchase on Pigu.lt/Aliexpress.com*
Strongly disagree
Disagree
Somewhat disagree
Neutral
Somewhat agree
Agree
Strongly agree
Pigu.lt
Aliexpress.com
Pigu.lt/Aliexpress.com website is well designed*
Strongly disagree
Disagree
Somewhat disagree
Neutral
Somewhat agree
Agree
Strongly agree
Pigu.lt
Aliexpress.com
BACK
NEXT
STOP AND CONTINUE LATER

Reliability related indicators

Reliability

Pigu.lt/Aliexpress.com performs their duties in the most professional way*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○
Aliexpress.com	○	○	○	○	○	○	○

It is easy to find all the needed product related information on Pigu.lt/Aliexpress.com*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○

Pigu.lt/Aliexpress.com provides enough information about their products*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○
Aliexpress.com	○	○	○	○	○	○	○

Product related information is valid on Pigu.lt/Aliexpress.com*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○
Aliexpress.com	○	○	○	○	○	○	○

Pigu.lt/Aliexpress.com website quality is high*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○
Aliexpress.com	○	○	○	○	○	○	○

Pigu.lt/Aliexpress.com encourages customer to leave feedback about their experience*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○
Aliexpress.com	○	○	○	○	○	○	○

BACK NEXT STOP AND CONTINUE LATER

Security related indicators

Security

Making a monetary transaction on Pigu.lt/Aliexpress.com is safe*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	◉	○	○	○
Aliexpress.com	○	○	○	◉	○	○	○

The information about my usage collected by Pigu.lt/Aliexpress.com is available to me*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○

Purchasing process at Pigu.lt/Aliexpress.com is consistent*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○
Aliexpress.com	○	○	○	○	○	○	○

My personal information is safe on Pigu.lt/Aliexpress.com*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○
Aliexpress.com	○	○	○	○	○	○	○

BACK NEXT STOP AND CONTINUE LATER

Privacy related indicators

Privacy related information was visible on Pigu.lt/Aliexpress.com*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	◉	○	○	○
Aliexpress.com	○	○	○	○	○	○	○

All personal information that Pigu.lt/Aliexpress.com collects is necessary and reasonable *

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○

All personal information that Pigu.lt/Aliexpress.com collects is necessary and reasonable *

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○
Aliexpress.com	○	○	○	○	○	○	○

BACK NEXT STOP AND CONTINUE LATER

Customer relationship related indicators

Pigu.lt/Aliexpress.com have a high expertise level*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○
Aliexpress.com	○	○	○	○	○	○	○

Overall trustworthiness of Pigu.lt/Aliexpress.com is high*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○

Overall trustworthiness of Pigu.lt/Aliexpress.com is high*

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Pigu.lt	○	○	○	○	○	○	○
Aliexpress.com	○	○	○	○	○	○	○

BACK NEXT STOP AND CONTINUE LATER

Dimension ranking

Please rank the most important added value dimensions*

In this question you will be asked to **distribute precentages to value dimensions according to your perceived importance level**. It is recommended to evaluate which dimension have the highest impact on your decision making and overall experience. That means the higher the precentage the bigger the importance level compared to other added value dimensions. The sum of the distributed values cannot transced 100. Any values (1-100) can be added to any dimensions as long as the previouly stated condtion of the maximum sum remains.

Example in which all of the dimensions would have an equal importance values:
User experience - 20%
Reliability - 20%
Security - 20%
Privacy - 20%
Customer relationship - 20%

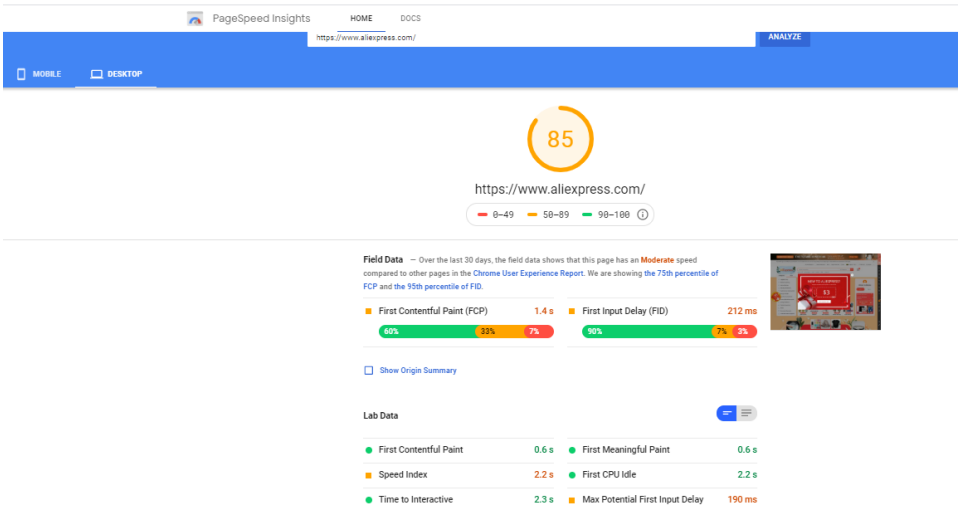
Dimension structure reminder:
User experience dimension indicators - speed, fluidity, effectivness, convenience, design attractiveness.
Reliability dimension indicators - information completeness, information finding, quality, feedback.
Security dimension indicators - the security of payments, the consistency of the purchasing process, the security and availability of personal information.
Privacy dimension indicators - visibility of the privacy policy, the necessity and reasonableness of the collection of personal information.
Customer relationship dimension indicators - level of competence, overall trustworthiness.

Padalinkite 100 % visiems atvejams

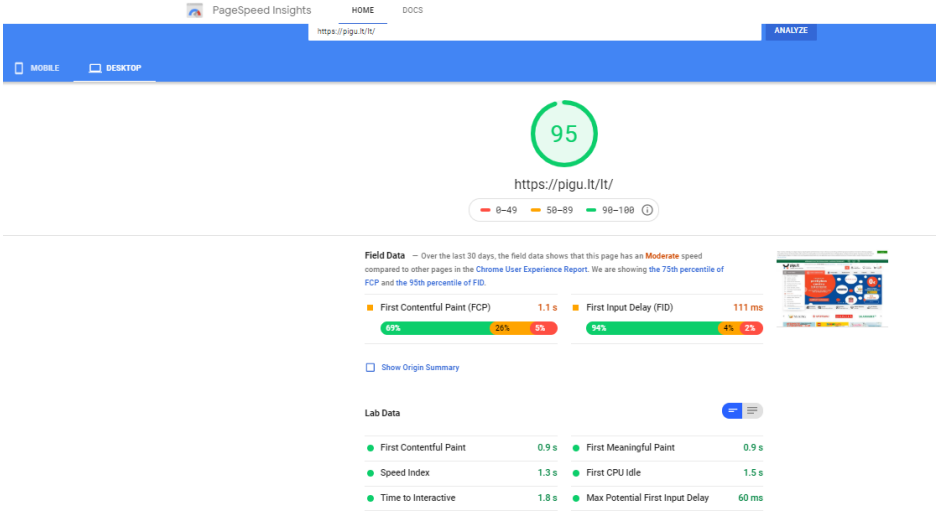
User Experience	0
Reliability	0
Security	0
Privacy	0
Customer relationship	0
	100

Appendix 2. “Google PageSpeed Insights” measurements.

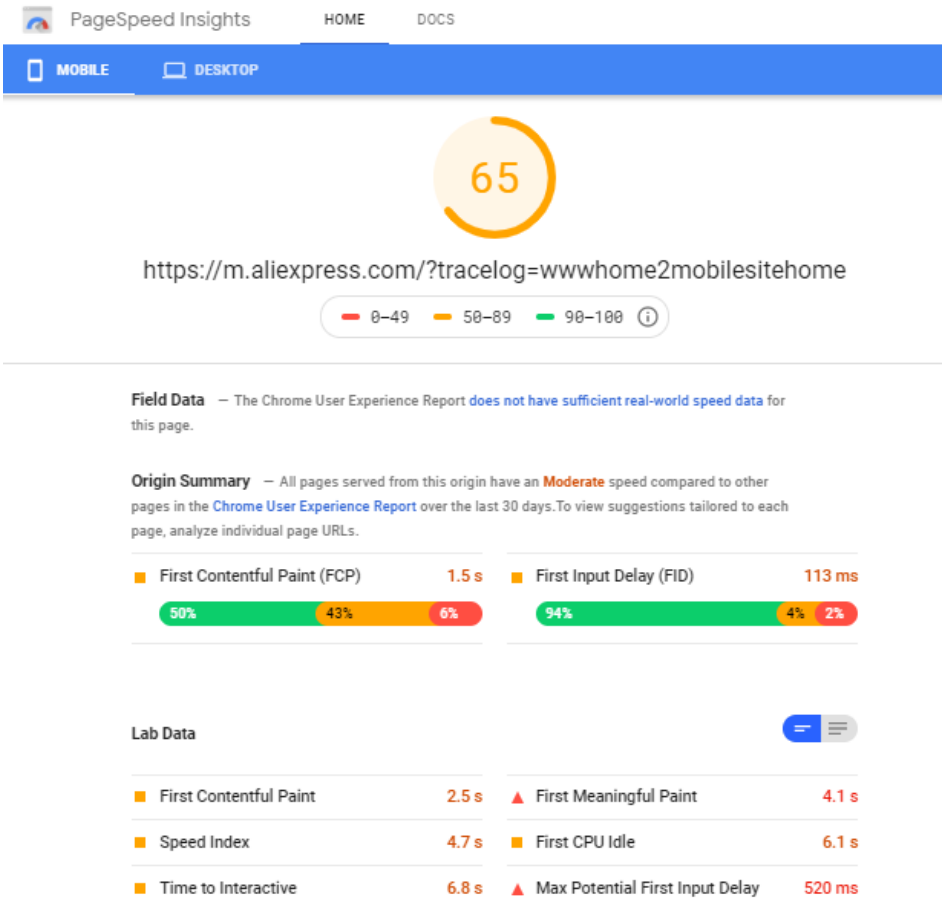
Aliexpress.com / Homepage / Desktop measurements



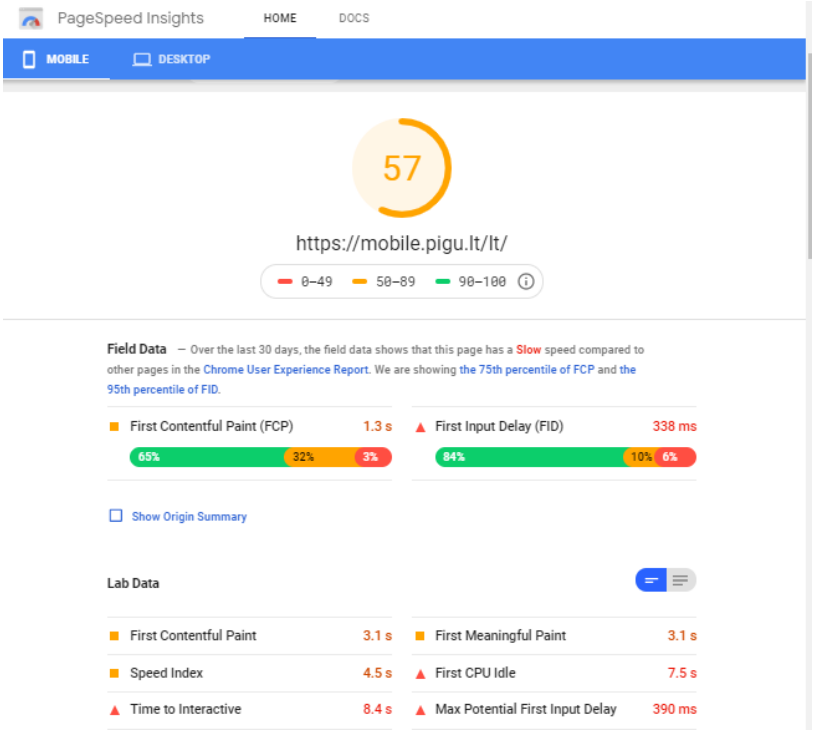
Pigu.lt / Homepage / Desktop measurements



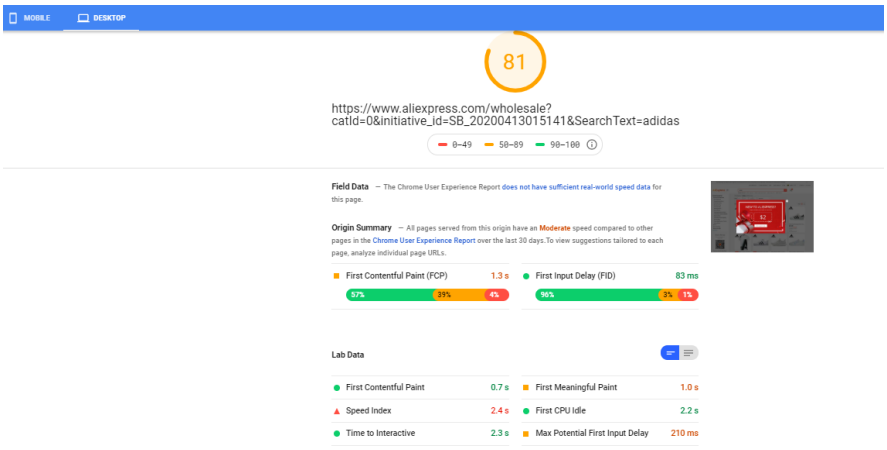
Aliexpress.com / Homepage / Mobile measurements



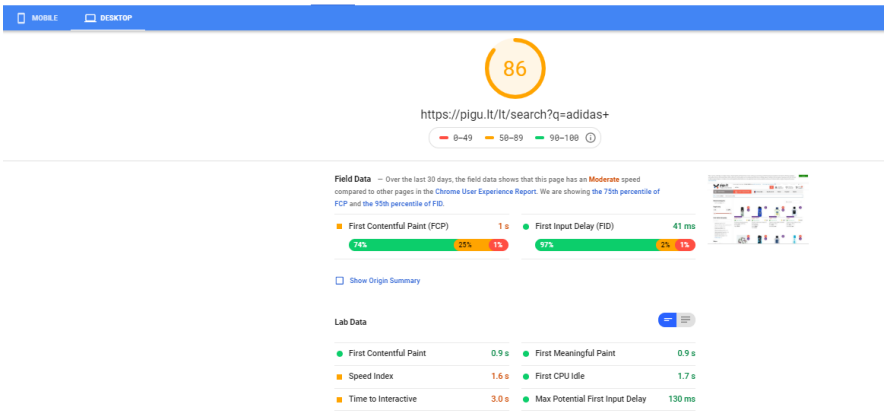
Pigu.lt / Homepage / Mobile measurements



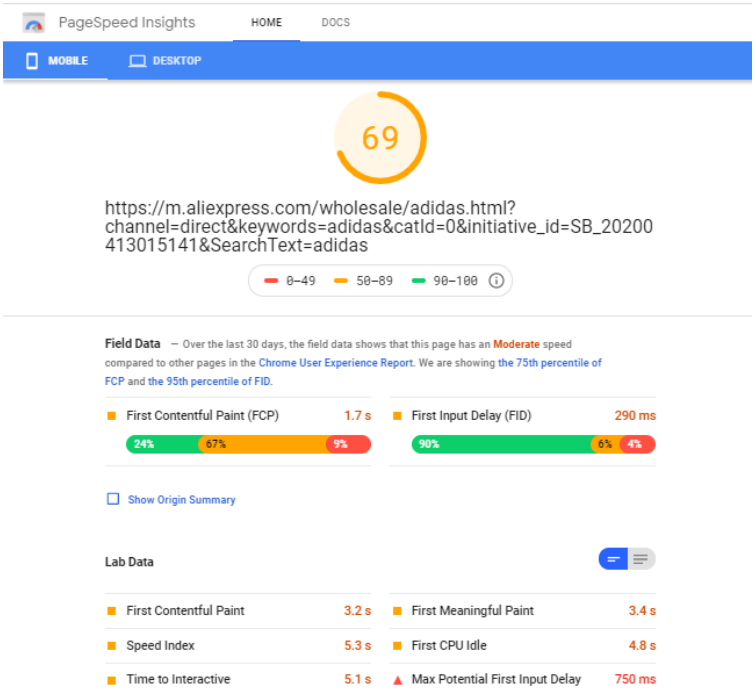
Aliexpress.com / Search result page / Desktop measurements



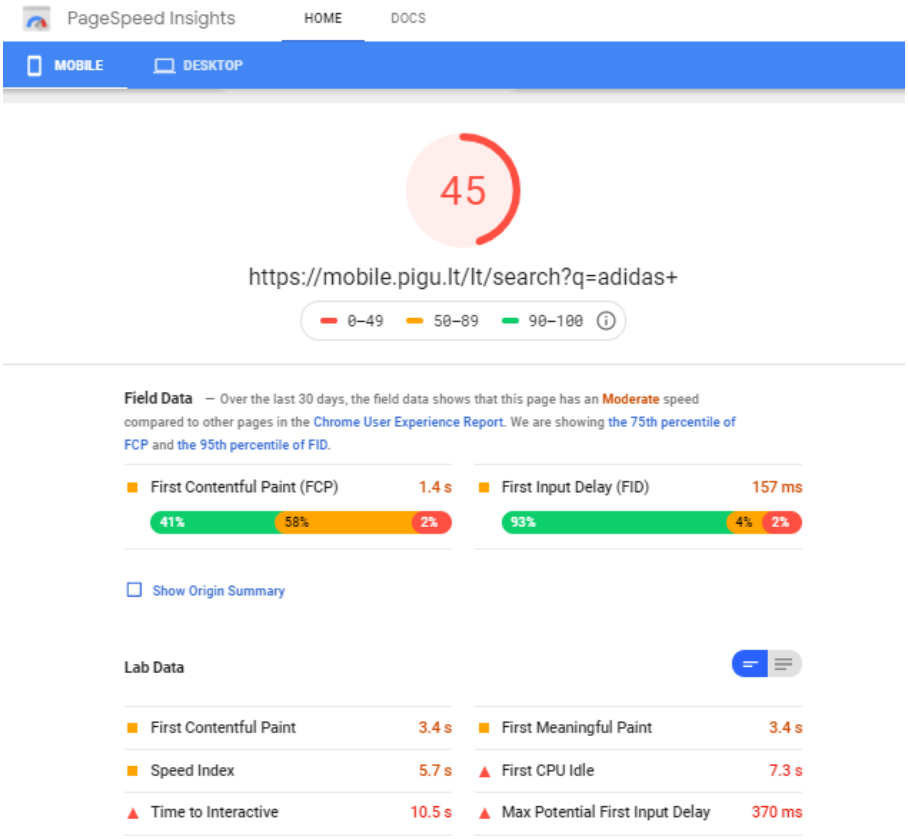
Pigu.lt / Search result page / Desktop measurements



Aliexpress.com / Search result page / Mobile measurements

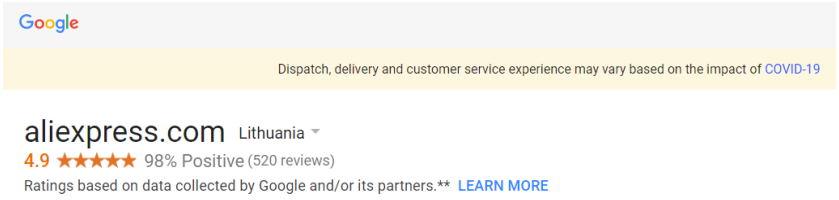


Pigu.lt/Search result page/Mobile

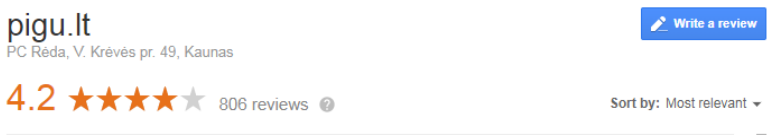


Appendix 3. “Google Business” measurements.

Aliexpress.com / Reputation score

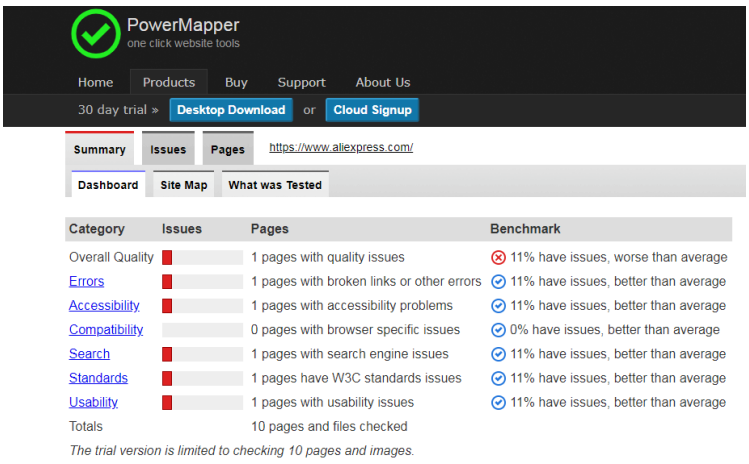


Pigu.lt / Reputation score

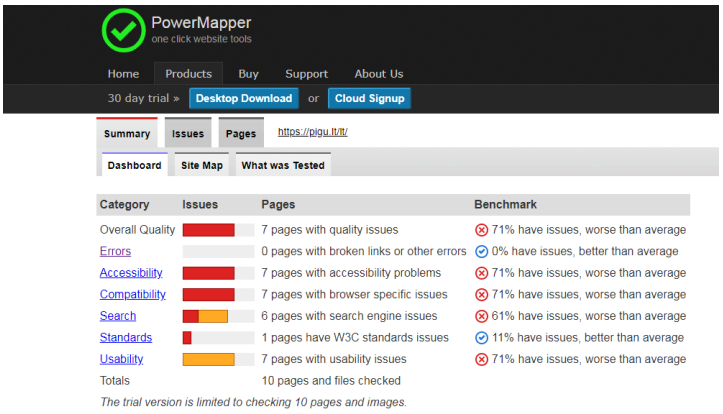


Appendix 3. “SortSite” measurements.

Aliexpress.com / Quality measurements

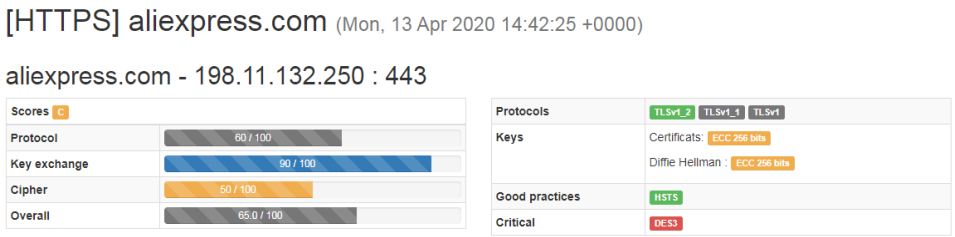


Pigu.lt / Quality measurements



Appendix 4. “CryptCheck” measurements.

Aliexpress.com / Security measurements



Pigu.lt / Security measurement